02-8811-13-SI
REV. NO. 0

FINAL DRAFT
SITE INSPECTION REPORT
NTU CIRCUITS, INC.
BABYLON, NEW YORK 11704

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO. 02-8811-13
CONTRACT NO. 68-01-7346

FOR THE

ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

MARCH 30, 1989

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY

Donald P. Hessemer

DONALD P. HESSEMER
PROJECT MANAGER

David Heim

DAVID HEIM
SITE MANAGER

REVIEWED/APPROVED BY

Ronald M Naman

RONALD M. NAMAN
FIT OFFICE MANAGER

338794

SITE NAME:	NTU Circuits, Inc.	**EPA ID NO:**	NYD981562614
ADDRESS:	60 Dale Street	**LATITUDE:**	40° 42' 55" N
	Babylon, New York 11704	**LONGITUDE:**	73° 23' 28" W

1.0 SITE SUMMARY

The NTU Circuits, Inc. Site is located in a 400-acre industrial park in the northwestern portion of Babylon, Suffolk County, New York. Printed circuit boards were manufactured at the facility between 1978 and September 1983, when the company moved to another location. NTU Circuits Inc. leased the eastern portion of a building from Spectrum Finishing Corporation. The current tenant is Midmer, Inc., an assembler of pipe organs. The western portion of the building was and is leased by a welding shop, Welding Mettalurgy, Inc. NTU used seven leach pools to dispose of its wastewater. The Suffolk County Department of Health Services (SCDHS) repeatedly notified NTU that its discharge was in violation of NTU's State Pollution Discharge Elimination System (SPDES) permit. Elevated levels of cadmium, copper, fluoride, iron, lead, silver and total solids were detected. The pH of the discharge was also found to be excess of New York groundwater standards.

In 1982, the Attorney General of the State of New York filed a complaint against NTU Circuits in regard to these violations of NTU's SPDES permit. The case was settled through a negotiated Stipulation of Discontinuance, which specified conditions for NTU to clean up its leach pools. The cleanup was supervised by SCDHS and Fanning, Phillips and Molnar (NTU's consultant) and was conducted by Patterson Chemical Co., a certified waste hauler.

From November 29 through December 3, 1983, liquids were drained from the leach pools and transported to NTU's new building (in North Bay Shore, New York), where they were treated in NTU's wastewater treatment system. Approximately 1 foot of sandy bottom material was removed from each leach pool. The leach pool for which NTU had its SPDES permit was treated with a lime slurry to precipitate any remaining metals. All leach pools were then lined with 1 to 2 feet of clean sand. The piping leading to the SPDES pool (SD-3) was cemented closed.

A site inspection was conducted by NUS Corporation Region 2 FIT personnel on November 30, 1988. Sediment samples were collected from four leach pools. Analytical data from these samples indicate the presence of the phthalate esters butylbenzylphthalate, bis(2-ethylhexyl)phthalate, and di-n-octylphthalate, and an estimated concentration of cadmium above that normally found in natural soils. These substances all were present in the discharge pool into which rinse water from NTU's photo darkroom was discharged. For a time, this pool had been connected to the pool designated to receive industrial discharge (pool SD-3). No organics were detected in any other samples, and inorganic substances detected were within normal ranges for natural soils. There are 4,744 residents within 1 mile of the site, and 30,236 people live within 3 miles of the site.

Ref. Nos. 1, 2, 3, 6, 7, 8, 9

2.0 SITE INSPECTION NARRATIVE

2.1 EXISTING ANALYTICAL DATA

From 1979 through 1981, SCDHS collected samples of wastewater being discharged to NTU's various leach pools. SCDHS issued 18 Notifications of Unsatisfactory Industrial Waste Sampling. The highest concentrations of compounds detected, and the applicable New York State Groundwater Standards, are presented in Table 1.

Ref. No. 7

2.2 WASTE SOURCE DESCRIPTION

NTU Circuits, Inc. operated at the facility at 60 Dale St. in Babylon, New York from 1978 to September 1983. NTU's operation involved the manufacture of printed circuit boards following designs submitted by clients. The process consisted of drilling, plating, photo developing, and cleaning operations. All plating solutions were reportedly drummed and removed for disposal by a licensed waste hauler. NTU produced an average of 6,205 gallons of waste per day.

There were seven leach pools to which water was discharged from the NTU facility. These were sand-lined pits through which water infiltrated to the water table. Three of these, SD-N1, SD-2, and SD-8, reportedly only received storm runoff and roof drainage. SD-A was an older sanitary pool which received sanitary wastes from both NTU and its neighbor, Welding Mettalurgy, Inc. SD-3 was the permitted (SPDES) discharge pool to which NTU released rinse water from plating processes. SD-7 received rinsewater from the photo printing operation, and was connected to SD-3 by a pipe.

A number of site inspections by the SCDHS noted the presence of foamy, bluish liquids in both SD-3 and SD-7. These findings prompted the sampling discussed in Section 2.1 above. NUS Corporation Region 2 FIT collected samples from four leach pools to characterize any residual contamination.

Ref. Nos. 2, 4, 5

2.3 GROUNDWATER ROUTE

The NTU Circuits site is entirely paved, except for the drainage pools. These drain into Pleistocene Age glacial outwash deposits of sand and gravel, with a permeability of approximately 10^{-3} cm/sec.. This formation is approximately 75 ft thick and houses the Upper Glacial Aquifer, which is under water-table conditions. Groundwater is found at approximately 15 ft below the ground surface, and, in the absence of influences from pumping, moves to the south-southeast at approximately 0.5 ft/day.

TABLE 1

Highest Concentrations Detected in Wastewater at NTU Circuits, Inc.

Analyte	Concentration(mg/L)	New York State Groundwater Standards (mg/L)
pH (range)	3-11 (pH units)	6.5 - 8.5 (pH units)
Copper	440	1.0
Chromium	0.15	0.10
Iron	28	0.6
Cadmium	0.07	0.02
Lead	4.6	0.02
Fluoride	3.2	3.0
Silver	1.1	0.1
Total Dissolved Solids	3,983	1,000

Ref. No. 7

Beneath the glacial deposits lie the sand and silt of the Matawan Group of the Magothy Formation. The Gardiners Clay may lie between the Magothy Formation and the glacial deposits, but the Gardiners Clay is not continuous in this area of Long Island. Therefore, the Magothy Formation is hydraulically connected to the glacial outwash deposits. The Magothy is estimated to be 800 ft thick. It is recharged from percolation through the glacial deposits, and recharge generally occurs in the center of Long Island, with discharge into Long Island Sound and the Atlantic Ocean. The average annual net precipitation is 15 inches.

The aquifers underlying Long Island are the sole source of water for public supply, irrigation and industry. The Upper Glacial and Magothy aquifers act as a single hydrogeologic unit, although only the Magothy is tapped for water within 3 miles of the site. Purity of water in the Upper Glacial Aquifer may be affected by the nearby Babylon Landfill, approximately 0.25 mile east of the NTU site. There are six public water systems which draw groundwater from the Magothy within 3 miles of the site:

- Suffolk County Water Authority
- South Huntington Water District
- South Farmingdale Water Authority
- Farmingdale Village Water Authority
- East Farmingdale Water District
- Dix Hills Water District

The total population served by these six water systems is 1,046,956. The nearest wells are located approximately 6400 ft southeast of the NTU facility, at the Suffolk County Water Authority's Gordon Avenue well field.

Ref. Nos. 2, 4, 5, 12, 13, 14, 15

2.4 SURFACE WATER ROUTE

The slope of the NTU site is less than 1 percent. The slope of the surrounding area is approximately 0-2 percent toward the south. The nearest surface waters are the Neguntatogue and Santapogue Creeks, each approximately 2 miles southeast of the site. However, there are no possible contaminant migration routes to these waters, as several roads and the Long Island Rail Road interrupt the pathway. There are no surface water intakes on either of these creeks, and no other known uses. There are no sensitive environments or critical habitats within 2 miles of the site, and the 1-year, 24-hour rainfall is 3 inches.

Ref. Nos. 10, 11, 16, 17

2.5 AIR ROUTE

No readings above background were detected in the ambient air on an Organic Vapor Analyzer or an HNu Photoionization Detector during the NUS Corporation Region 2 FIT site inspection of November 30, 1988. There are no national historic sites within 1 mile of the site.

Ref. No. 2

2.6 ACTUAL HAZARDOUS CONDITIONS

There have been no documented instances of direct physical contact by humans or domestic animals with hazardous materials at the site.

Additionally:

- Contamination has not been documented either in organisms in a food chain leading to humans or in organisms directly consumed by humans.
- There have been no documented incidents of damage to flora (e.g., stressed vegetation) or to fauna (e.g., fish kill) that can be attributed to hazardous material at the facility.
- There is no documented contamination of a sewer or storm drain.
- There is no direct evidence of release of a substance of concern from the facility to the groundwater.
- There is no threat of explosion or fire hazard on site.

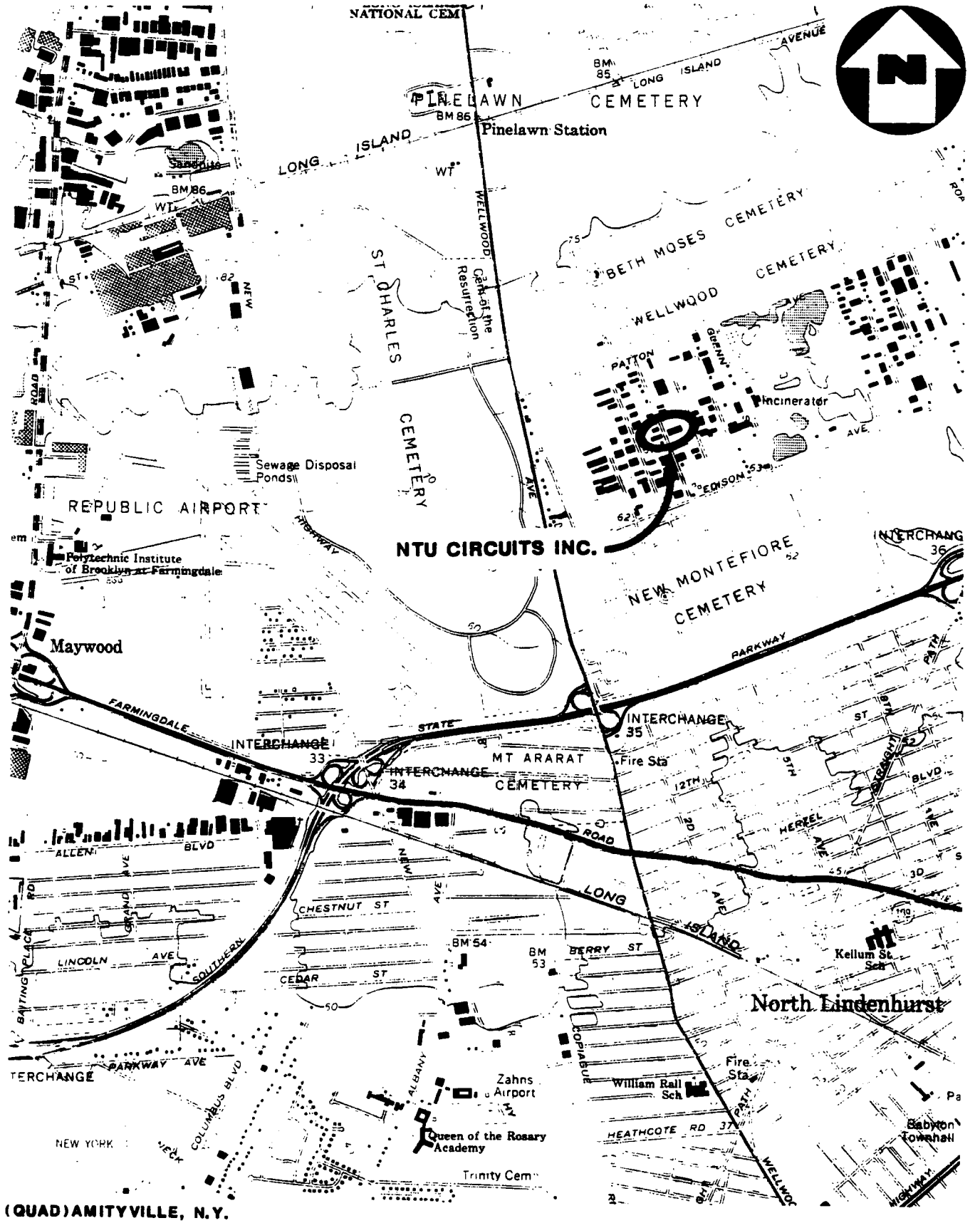
Ref. Nos. 2, 4, 5

3.0 MAPS AND PHOTOS

NTU CIRCUITS, INC.

BABYLON, NEW YORK

CONTENTS



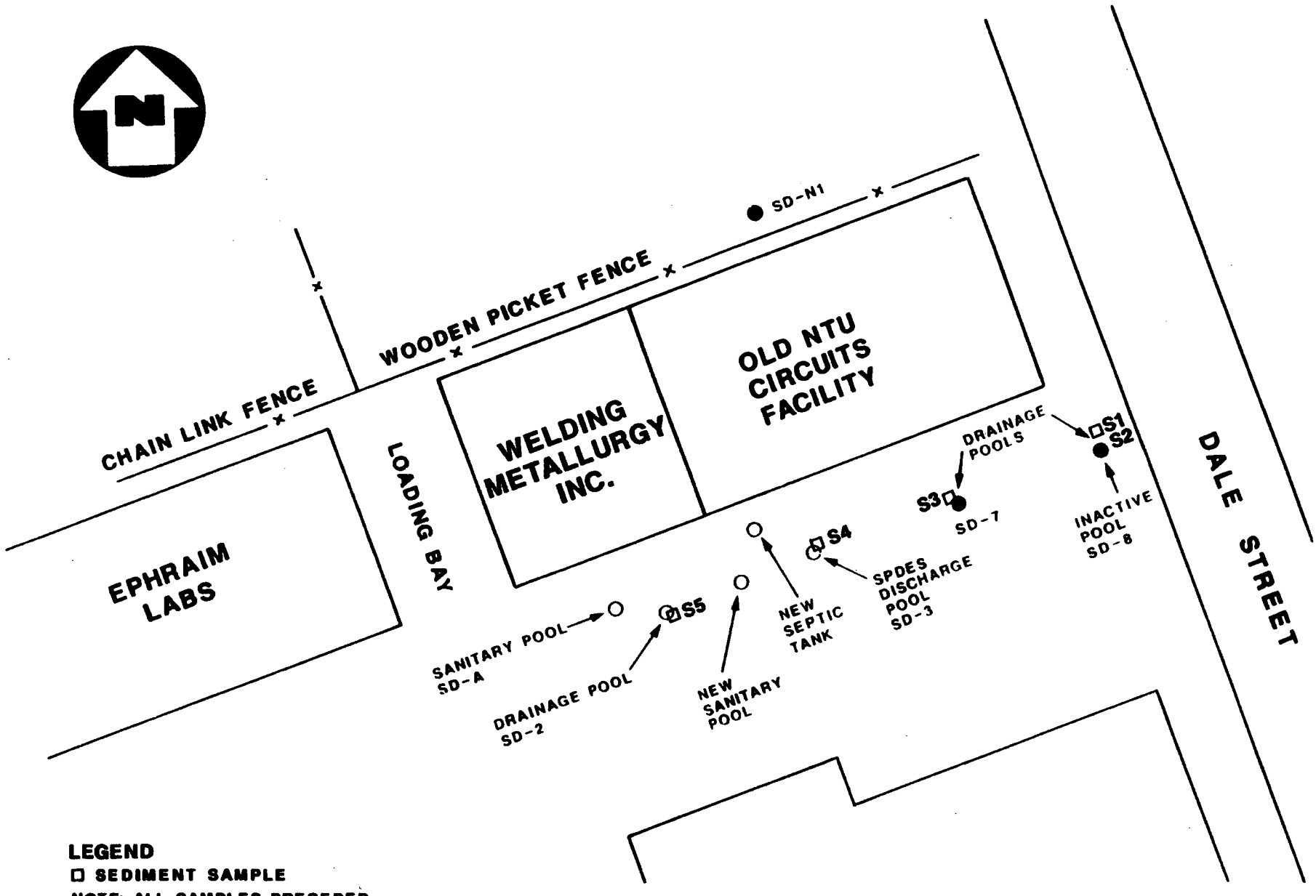
SITE LOCATION MAP

NTU CIRCUITS, INC., BABYLON, N.Y.

SCALE: 1" = 2000'

FIGURE 1

NUS CORPORATION



LEGEND

□ SEDIMENT SAMPLE

NOTE: ALL SAMPLES PRECEDED BY NYEA

SAMPLE LOCATION MAP

NTU CIRCUITS, INC., BABYLON, N.Y.

0 50 0

APPROX. SCALE (FEET)

FIGURE 2

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Rev. No. 0

EXHIBIT A

PHOTOGRAPH LOG

NTU CIRCUITS, INC.
BABYLON, NEW YORK
NOVEMBER 30, 1988

NTU CIRCUITS, INC.
BABYLON, NEW YORK
NOVEMBER 30, 1988

PHOTOGRAPH INDEX

ALL PHOTOGRAPHS TAKEN BY DAVID HEIM

Photo Number	Description	Time
1P-2	NTU parking lot; two drainage pools and Babylon Landfill visible.	1055
1P-3	R. Lorfing augering for sample NYEA-S5.	1125
1P-4	R. Lorfing collecting sample NYEA-S4.	1150
1P-5	B. Nies filling in borehole with clean sand.	1200
1P-6	Boring into drainage pool SD-7, for sample NYEA-S3.	1215
1P-7	R. Lorfing collecting sample NYEA-S3.	1240
1P-8	R. Lorfing collecting duplicate samples NYEA-S1, S2.	1300

NTU CIRCUITS, INC., BABYLON, NEW YORK

1P-2 November 30, 1988 1055
NTU parking lot; two drainage pools and Babylon Landfill visible.

1P-3 November 30, 1988 1125
R. Lorfing augering for sample NYEA-S5.

NTU CIRCUITS, INC., BABYLON, NEW YORK

1P-4 November 30, 1988 1150
R. Lorfing collecting sample NYEA-S4.

1P-5 November 30, 1988 1200
B. Nies filling in borehole with clean sand.

NTU CIRCUITS, INC., BABYLON, NEW YORK

1P-6 November 30, 1988 1215
Boring into drainage pool SD-7, for sample NYEA-S3.

1P-7 November 30, 1988 1240
R. Lorfing collecting sample NYEA-S3.

NTU CIRCUITS, INC., BABYLON, NEW YORK

1P-8 November 30, 1988 1300
R. Lorfing collecting duplicate samples NYEA-S1, S2.

4.0 SITE INSPECTION SAMPLING RESULTS

NUS Corporation Region 2 FIT conducted a site inspection of the former NTU Circuits facility on November 30, 1988, during which four sediment samples were collected from four leach pools. These samples were subsequently analyzed to determine whether any Target Compound List (TCL) substances were present on site. Sample locations are shown in Figure 2 of Section 3.0.

No volatile organic compounds were detected in any of the samples, nor were any pesticides or polychlorinated biphenyls (PCBs) detected.

Semivolatile analysis revealed the presence of three phthalate esters in sample NYEA-S3, collected from drainage pool SD-7. Butylbenzylphthalate was detected at 3300 ug/kg, bis(2-ethylhexyl) phthalate at 9100 ug/kg, and di-n-octylphthalate at 870 ug/kg.

Results of inorganic analyses indicate the presence of most metals within normal ranges for natural soils. However, cadmium was detected in sample NYEA-S3 in a concentration estimated at 21.6 mg/kg. This value is estimated because of insufficient spike recovery in the laboratory.

Ref. Nos. 2, 3

5.0 CONCLUSIONS AND RECOMMENDATIONS

The sample NYEA-S3 contained three different phthalate esters in concentrations less than 10,000 ug/kg. The presence of these substances can not be attributed to the activities of NTU Circuits, Inc. Di-n-octylphthalate, bis-(2-ethylhexyl)phthalate, and butylbenzylphthalate are used almost exclusively as plasticizers in the manufacture of polyvinyl chloride. This activity was not undertaken at NTU Circuits, Inc., and this contamination can not be attributed to NTU.

However, cadmium was also found in sample NYEA-S3, at a concentration estimated at 21.6 mg/kg. This contaminant had been used by NTU, and indeed, SCDHS had cited NTU several times for exceeding discharge limits of cadmium.

Although the groundwater migration route is of concern in this part of Long Island, the leach pools have been excavated and refilled, and the practices which led to the contamination have ceased. Therefore, a recommendation of **NO FURTHER REMEDIAL ACTION PLANNED** (NFRAP) is made.

Ref. Nos. 3, 7

6.0 REFERENCES

1. General Sciences Corporation, Graphical Exposure Modeling System (GEMS). Landover, Maryland, 1986.

2. Field Notebook No. 0371, NTU Circuits, Inc. TDD No. 02-8811-13, Site Inspection, NUS Corporation Region 2 FIT, Edison, New Jersey. November 30, 1988.

3. U.S. EPA Contract Laboratory Program, Industrial Corrosion Management and JTC Environmental Consultants, Case No. 10959, Laboratory Analysis from NUS Corporation Region 2 FIT Site Inspection conducted on November 30, 1988.

4. EA Science and Technology, Phase 1 Investigation of NTU Circuits, Inc. prepared for New York State Department of Environmental Conservation (NYSDEC), June 1987.

5. NUS Corporation, Preliminary Assessment, NTU Circuits, Inc. March 11, 1988.

6. NYSDEC, State Pollutant Discharge Elimination System (SPDES) Permit issued to NTU Circuits, Inc. August 26, 1980.

7. Suffolk County Department of Health Services (SCDHS) Notifications of Unsatisfactory Industrial Waste Sampling issued to NTU Circuits, Inc. 1979-1981.

8. Supreme Court of the State of New York, Stipulation of Discontinuance, NTU Circuits, Inc., April 30, 1982.

9. Letter from Errol S. Kitt, Fanning, Phillips & Molnar, to Robert Abrams, Attorney General of the State of New York, February 21, 1984.

10. Three-Mile radius map, NTU Circuits, Inc. Based on U.S.G.S. 7.5 minute series maps, Amityville, Bay Shore West, Huntington, Greenlawn quadrangles topographic maps.

11. NYSDEC, Bureau of Wildlife, Significant Habitat Overlays No. 1 and 2, 1981, revised November 1985.

12. Pluhowski, E.J. and Kantrowitz, I.H., Hydrology of the Babylon-Islip Area Suffolk County, Long Island, New York. Geological Survey Water-Supply Paper 1768, 1964.

13. Jensen, H.M. and Soren, Julian. Hydrogeology of Suffolk County, Long Island, New York, 1974.

14. Soren, Julian and Cohen, Philip. Results of a Subsurface Exploration in the Mid-Island Area of Western Suffolk County, Long Island, New York, with a Section on Potential Development of Groundwater in the Mid-Island Area, U.S. Geological Survey, 1971.

15. New York State Department of Health, Bureau of Public Water Supply Protection, New York State Atlas Of Community Water Sources, 1982.

16. National Weather Service, Maps of Lake Evaporation, Annual Precipitation, and 1-year, 24-hour rainfall.

17. Telecon note: Conversation between B. Parker, SCDHS, and David Heim, NUS Corporation, March 29, 1989.

REFERENCE NO. 1

REFERENCE NO. 2

0012-F
02-8811-13

NUS CORPORATION

II

0371

NTU CIRCUITS INC.
02-8811-13
ASSIGNED TO-D. HEIM
LOGBOOK #0371
NOVEMBER 22, 1988

C-150-3-34-125

GUIDANCE FOR PROPER USE OF LOG BOOKS

Purpose

- Serves to document onsite activities and be understandable to an outside reader.
- Provides the basis for later written reports.
- Used an an evidentiary document and may be used in legal proceedings.

Distribution

- Controlled by the project manager and distributed as appropriate to personnel designated by the project manager.

General Procedures

- Record information in language which is objective and factual.
- Use ink. Waterproof ink is recommended.
- Leave first two pages blank. They serve as space for the table of contents to be added when the log book is complete.
- The first written page identifies the date, time, TDD number, site name, location, NUS personnel and their responsibilities, other non-NUS personnel and observed weather conditions.
- Start on a new page at the start of each day's field activities. This page should identify date, time, TDD number, site name and location, NUS personnel and their responsibilities, other non-NUS personnel and observed weather conditions.
- List all persons leaving or entering the site.
- Information recorded in the log book should be in chronological order.
- Sign and date each page, log all entries using a 24 hour clock. Entries should be time logged every 15 to 30 minutes.
- Corrections are to be lined through and initialed. No erroneous notes are to be made illegible.
- Include a sketch or map of the site which can be used to locate photo or sample locations. Note landmarks, indicate north, and if possible include an approximate scale. Include as many sketches and maps as necessary.
- A person not present when field activities were being documented should read each completed page, and countersign and date when satisfied that the written notes are understandable.

Specific Field Activities To Be Documented

- Record the who, what and where of field activities.
- Indicate sampling and photo locations on a site sketch or map.
- As part of the chain of custody procedure, recorded in-situ sampling information must include sample number, date, time, sampling personnel, sample type, designation of sample as a grab or composite, and any preservative used.
- Information for in-situ measurements must include a sample ID number, the date, time, and personnel taking measurements. Pertinent in-situ measurements include but are not limited to pH, temperature, conductivity, flow measurements, continuous air monitoring measurements, and stack gas analysis. If initial calculations are necessary they must be checked and signed by a second team member.
- Create a photo log to document photos taken in the field. These must include date, time, photographer, sample number, roll number, frame number, photo ID number and description. Indicate if the film is for slides or prints in the column for roll number. Photo ID numbers can be added at the time the photo log is assembled.
- Record onsite health and safety measures used. Describe observed potential hazards to health and safety. Document the level of protection used, decontamination procedure used and specific decontamination solutions.
- When sampling is complete, a summary log is to be completed. It must include date, time, sample number, description, field book reference page, and the number and date of the chain of custody from on which the sample is listed. Indicate whether or not the sample was split.
- Record details regarding relevant information obtained during onsite interviews. Include names of persons interviewed, the interest group represented, their address and phone number.
- Record any other relevant information which would be difficult to generate at a later date.

CONTENTS

Susan M. Kennedy 12/1/88 David Klein 12/1/88

SITE PERSONNEL + DUTIES

D. Heim	SM
B. Nies	SSO
R. Corfing	Sampler
K. Fendler	SMO

Susan M. Kennedy 12/1/88

David Heim 11-30-88

1020 Arrive on site; mobilizing
B Nies goes to Midmer, Inc, active tenant of building at 60 Dale St - they mfg. pipe organs.

1030 Tailgate Safety Meeting

D Heim	DH	11.30
B Nies	[signature]	11-30
R Lorfing	[signature]	11/30/88
K Fendler	[signature]	11/30-88

Workplan and QA requirements was discussed with the above personnel.

weather conditions mostly sunny, approx 50°F, wind 15 mph towards NE

[signature] 11-30-88

Midmer Inc makes pipe organs.

UVG-m #469784 field ready 11-29 PCB
CA label

HNu L field ready 11-29 PCB
EPA # 469748
probe 469754

Susan M. Kennedy 12/1/88 David Heim 11/30/88

NTH Cascade 0 [illegible] 11/30/88

1045 B. Mc field calibrating air instruments

Minirod EPA # 428522 Coleman mantle check.

1050 BN, DH do onsite level B recon.

background settings OVA 1 ppm
HNu 1 ppm

no readings above background down any of drain grates.

hole #2 → SD-7 appears to have water standing inside.
SD-2 ← #4 " " " " " "

flat parking lot (with cars) adjacent to brick bldg. which NTH formerly occupied. (60 Dale St.) approx. ½ acre in size

1055 photo #12 taken of lot, 2 drains visible.
RL decon'ing sample equipment.

cats walking around site

1105 no readings above background on OVA, Minirod, HNu.

B.11 D. Chirico arrives at site.

Spectrum main office on Cabot St.

well in parking lot, 2 more on other side of Spectrum bldg.

Susan McKenney

R Carroll H Orion 11.30.88

1110 gw flow in Southerly direction here.
There's a private study report on Spectrum.

none of the drains are connected to anything, only septic fields, according to Mr. DiChirico

1120 no sample will be drawn on N side of bldg., no storm drain inside of fence on NTU property.
no readings above background on OVA, HNu, mini-rad

1125 hole #4, → SD-2 approx 1 foot of water standing in septic hole.
R. Lafing pushing in auger.
Sample will be collected at approx. 2 feet below sediment surface.
photo #3 of R. Lafing augering hole #4 SD-2

1130 sample S-5 collected - small amount of top sediment dropping back into hole
sand with some gravel light tan

no air readings (OVA, HNu, mini-rad) above background on sample or above liquid at hole.
(water has oil sheen)

Sample drawn from 2½ - 4.5 feet below sed. surface

Steven McKenney 3/1/86 Daniel Z... 11:30

soil surface 3' below surface,

Sample from 5.5 - 7.5 feet below pavement surface

1135 filling in clean soil where we removed auger hole.

1140 return to decon area to return samples + prepare for next sample location — drain #3 → SD-3 KF collecting [illegible] 1

SD-3 10 inch [illegible]

1145 drainhole #3 - soil in 3 feet below parking lot surface.

in hole: approx 2' of cobble stone, 2 filled-in drainpipes leading to hole - larger opening below hole, approx 2" of dark ^{fines} sediment, then light tan sands, much like other sample.

no readings above background on HNU, Miniram or CVC

auger hit refusal (concrete) at a depth of ~8' below parking lot surface

1150 sample S-4 drawn from 6' to 8' below parking lot

photo #4 of [illegible] collecting sample

Susan McKenney

[signature] Hein 11-30-88

1200 photo 5 of B Nin putting clean sand into hole, R Lorfing removes grate from drain hole #2

1205 at hole #2 SD-7 H_2O surface 3.5 ft below ground, soil surface 5.5 ft below ground. adding another auger extension. RL says the sed is very soft

1210 1st auger bucket in black silty sand - hole caved in after auger removed.

This hole opens out beneath the surface, to be a drain pipe ~~10~~ leading out of building

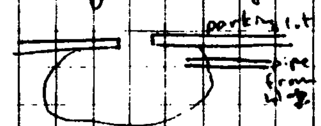


photo 6 of pipe

1220 begin sampling - grey-black gravelly sand no reading above background on HNu, OVA no miniram

Sample looks oily, trace silt in sands.
odor of gasoline, but no OVA/HNu reading above bkg.
Oily sheen on water

Susan McKenzie 12/1/88 David Noir 11.30 FT

1230 sample collected from pavement surface 10 - 11 feet below

1240 photo #7 of RL collecting S-3 (MS-MSD)

1245 open hole #1. → SD-8 approx 8' deep (dry hole, expansion below paving (ol.) light tan sand mottled with orange

1255 Samples S-1 and S-2 (dup) collected from ~~4 to 10 ft~~ below 11 to 12½ feet below pavement surface no readings on OVA HNu, visible contamination above

1300 photo 8 of RL collecting S-1 & S-2

1305 replace w/clean cover, replace lid, return to decon area & command post.

1325 breaking down decon area, & preparing samples.

1400 leave site

1700 leave samples at Federal Express

Susan McKelvey

Dennis Klein
4-30-88

NTH Creek Co 02 884-13 12-22-88

POST - SI OBSERVATIONS

1. Discharge pool on North of site was not sampled because it is NOT on the property, access not secured from property owner of property.

2. No evidence of migration potential from drainage pools other than through sand in pools.

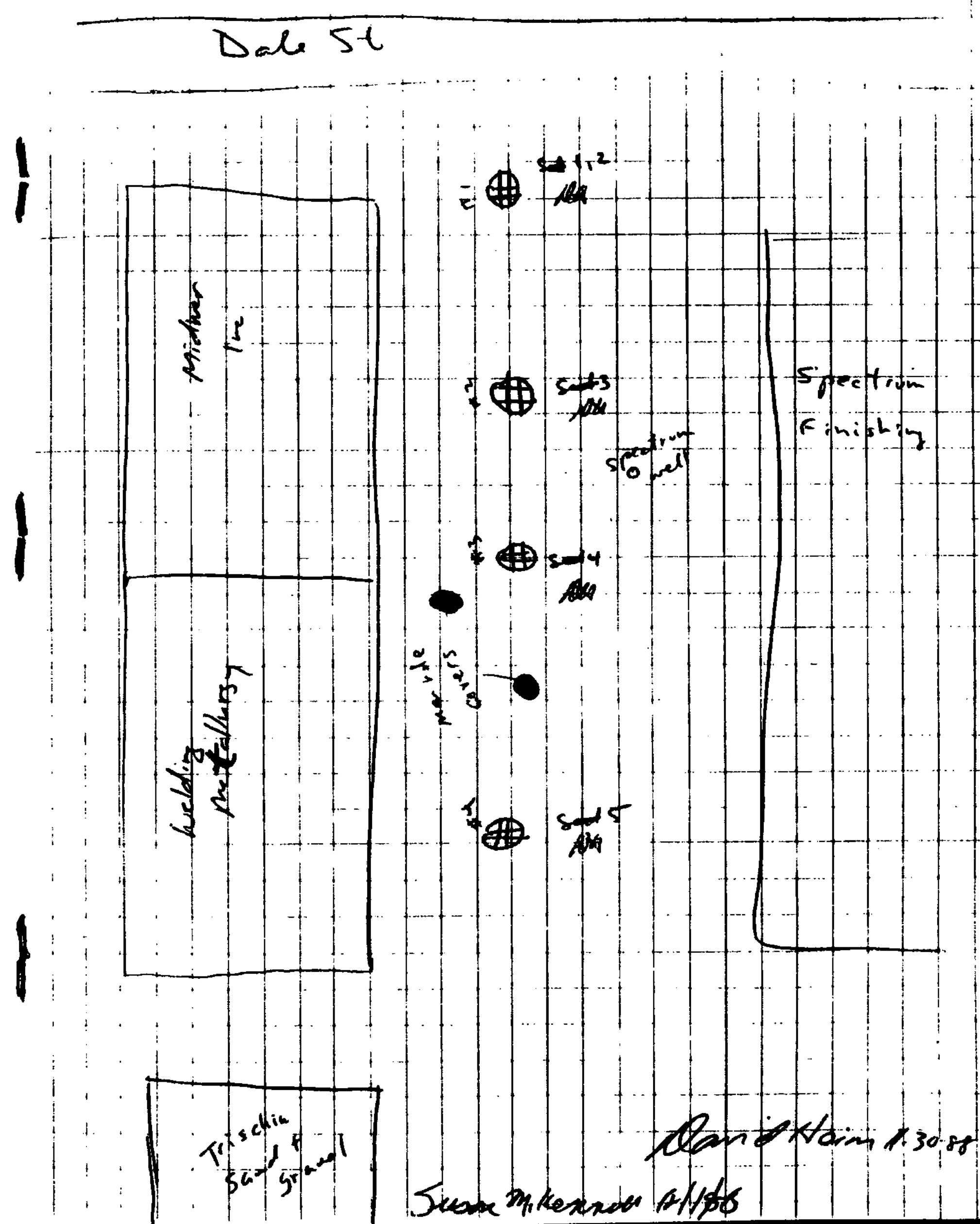
3 No vegetation in parking lot to be trimmed.

4 No potential for direct contact ~~with soils~~ to hazardous waste in drainage pool — someone would have to pull water off of drainage pools.

5 No apparent pathway for surface water to run off — that's what the storm drains are for.

Alan Klein 12.22.88

NTU Circuits 11-30-88



David Haim 11-30-88
Susan McKennon 11/1/88

MTU Circuits

PHOTO LOG

TIME	Photo #		Description
1055	IP-1, IP-2,	IS-1, IS-2,	active parking lot, 2 of 3 drain chains visible
1125	IP-3	IS-3	R looking across 5-1, 5-2
1152	IP-4	IS-4	R looking E-W 5-4
1200 approx	IP-5	IS-5	B Nino filling hole w/clean sand
1215	IP-6	IS-6	pipe extending into drain hole #2.
1240	IP-7	IS-7	Rl collecting 5-3
1300	IP-8	IS-8	Rl collecting 5-1, 5-2

Mark Hahn
11-30-88

Susan M. Heasley 12/1/88

SAMPLE JAR/BOTTLE LOT NUMBERS

SAMPLE NO	VOA	TOTAL METALS (2 YRS)	EXTRACTABLES
S1	D8200583	G8109223	G8109223
S2 (TRIP)	D8200583	G8109223	G8109223
S3 (MS/MSD)	D8200583	G8109223	G8109223
S4	D8200583	G8109223	G8109223
S5	D8200583	G8109223	G8109223
S6	B8288063	B8288063	
S7 (MS/MSD)	B8288063	C8221063 C8238363	G8216223
S8	B8288063	C8288063	G8216223

all containers from I-Chem

Susan McKennedy 12/1/88

David Herry
11-25-88

REFERENCE NO. 3

- Copy of CLP Data
(Redlined & marked)

- Computer QA'd printout

Site Name: NTU Circuits, Inc.
Case : 10959
Brics #: NYEA
TDD # : 02-8811-13

SITE NAME: NTH CIRCUITS
[redacted] 02-[redacted]
SAMPLING DATE: 11/30/88
EPA CASE NO.: 10959 LAB: ICH

VOLATILES

Sample ID No.	MYER-S1	MYER-S2(DUP)	MYER-S3(MS/MSD)	MYER-S4	MYER-S5	MYER-RIN1(MS/MSD)	MYER-RIN2	MYER-TBLK1
Traffic Report No.	BM831	BM832	BM833	BM834	BM835	BM852	BM853	BM836
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L
Dilution Factor	1	1	5	1	1	1	1	1
Percent Moisture	8	9	24	9	18	—	—	—
Chloromethane								
Bromomethane								
Vinyl Chloride								
Chloroethane								
Methylene Chloride						B	B	B
Acetone						B	B	B
Carbon Disulfide								
1,1-Dichloroethene								
1,1-Dichloroethane								
Trans-1,2-Dichloroethene (total)								
Chloroform						J	6	6
1,2-Dichloroethane								
2-Butanone								
1,1,1-Trichloroethane							B	B
Carbon Tetrachloride								
Vinyl Acetate								
Bromodichloromethane								
1,2-Dichloropropane								
cis-1,3-Dichloropropene								
Trichloroethene								
Dibromochloromethane								
1,1,2-Trichloroethane								
Benzene								
trans-1,3-Dichloropropene								
Bromoform								
4-Methyl-2-Pentanone								
2-Hexanone								
Tetrachloroethene								
Toluene						B	B	B
1,1,2,2-Tetrachloroethane								
Chlorobenzene								
Ethylbenzene								
Styrene								
Xylenes (Total)								

NOTES:
Blank space - compound analyzed for but not detected
B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
E - estimated value
J - estimated value, compound present below CRQL but above IDL
R - analysis did not pass EPA QA/QC
N - Presumptive evidence of the presence of a compound, but can't be identified
NR - analysis not required
Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

SITE NAME: NTU-CAROLYN'S
ID[redacted]-8811-15
SAMPLING DATE: 11/30/88
EPA CASE NO.: 10959 LAB: ICM

PESTICIDES

Sample ID No.	NYEA-S1	NYEA-S2(DUP)	NYEA-S3(MS/MSD)	NYEA-S4	NYEA-S5	NYEA-RIN1(MS/MSD)	NYEA-RIN2	NYEA-TBLK1
Traffic Report No.	BM831	BM832	BM833	BM834	BM835	BM852	BM853	BM836
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L
Dilution Factor/GPC Cleanup (Y)	1	1	5	1	1	1	1	N/A
Percent Moisture	8	9	24	9	18	—	—	N/A
alpha-BHC								NR
beta-BHC								NR
delta-BHC								NR
gamma-BHC (Lindane)								NR
Heptachlor								NR
Aldrin								NR
Heptachlor epoxide								NR
Endosulfan I								NR
Dieldrin								NR
4,4'-DDE								NR
Endrin								NR
Endosulfan II								NR
4,4'-DDD								NR
Endosulfan sulfate								NR
4,4' DDT								NR
Methoxychlor								NR
Endrin ketone								NR
alpha-Chlordane								NR
gamma-Chlordane								NR
Toxaphene								NR
Aroclor-1016								NR
Aroclor-1221								NR
Aroclor-1232								NR
Aroclor-1242								NR
Aroclor-1248								NR
Aroclor-1254								NR
Aroclor-1260								NR

NOTES:
Blank space - compound analyzed for but not detected
B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
E - estimated value
J - estimated value, compound present below CRQL but above IDL
R - analysis did not pass EPA QA/QC
N - Presumptive evidence of the presence of a compound, but can't be identified
NR - analysis not required
Detection limits elevated if Dilution Factor)1 and/or percent moisture)0%

SITE NAME: NTL CIRCUITS
[redacted] 02-[redacted]
SAMPLING DATE: 11/30/88
EPA CASE NO.: 10959 LAB: ICN

SEMI VOLATILES								
Sample ID No.	NYEA-S1	NYEA-S2(DUP)	NYEA-S3(MS/MSD)	NYEA-S4	NYEA-S5	NYEA-RIN1(MS/MSD)	NYEA-RIN2	NYEA-TBLK1
Traffic Report No.	BW831	BW832	BW833	BW834	BW835	BW852	BW853	BW836
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L
Dilution Factor/GPC Cleanup (Y)	1	1	2	1	1	1	1	N/A
Percent Moisture	8	9	24	9	18	--	-	N/A
Phenol								NR
bis(2-Chloroethyl)ether								NR
2-Chlorophenol								NR
1,3-Dichlorobenzene								NR
1,4-Dichlorobenzene								NR
Benzyl alcohol								NR
1,2-Dichlorobenzene								NR
2-Methylphenol								NR
bis(2-Chloroisopropyl)ether								NR
4-Methylphenol								NR
N-Nitroso-di-n-dipropylamine								NR
Hexachloroethane								NR
Nitrobenzene								NR
Isophorone			J					NR
2-Nitrophenol								NR
2,4-Dimethylphenol								NR
Benzoic acid								NR
bis(2-Chloroethoxy)methane								NR
2,4-Dichlorophenol								NR
1,2,4-Trichlorobenzene								NR
Naphthalene								NR
4-Chloroaniline								NR
Hexachlorobutadiene								NR
4-Chloro-3-Methylphenol								NR
2-Methylnaphthalene								NR
Hexachlorocyclopentadiene								NR
2,4,6-Trichlorophenol								NR
2,4,5-Trichlorophenol								NR
2-Chloronaphthalene								NR
2-Nitroaniline								NR
Dimethylphthalate								NR
Acenaphthylene								NR
2,6-Dinitrotoluene								NR
3-Nitroaniline								NR
Acenaphthene								NR
2,4-Dinitrophenol								NR
4-Nitrophenol								NR
Dibenzofuran								NR
2,4-Dinitrotoluene								NR
Diethylphthalate								NR
4-Chlorophenyl-phenyl ether								NR
Fluorene								NR
4-Nitroaniline								NR
4,6-Dinitro-2-methylphenol								NR
N-nitrosodiphenylamine								NR
4-Bromophenyl-phenyl ether								NR
Hexachlorobenzene								NR

[redacted]: N[redacted]ITS
TODO: 02-6811-13
SAMPLING DATE: 11/30/88
EPA CASE NO.: 10959 LAB: ICH

SEMI VOLATILES								
Sample ID No.	NYEA-S1	NYEA-S2(DUP)	NYEA-S3(MS/MSD)	NYEA-S4	NYEA-S5	NYEA-RIN1(MS/MSD)	NYEA-RIN2	NYEA-TBLK1
Traffic Report No.	BM831	BM832	BM833	BM834	BM835	BM852	BM853	BM836
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L
Dilution Factor/GPC Cleanup (Y)	1	1	2	1	1	1	1	N/A
Percent Moisture	8	9	24	9	18	—	—	N/A
Pentachlorophenol								NR
Phenanthrene			J					NR
Anthracene								NR
Di-n-butylphthalate								NR
Fluoranthene			J					NR
Pyrene			J					NR
Butylbenzylphthalate			3300					NR
3,3'-Dichlorobenzidine								NR
Benzo(a)anthracene								NR
Chrysene								NR
bis(2-Ethylhexyl)phthalate			9100					NR
Di-n-octylphthalate			870					NR
Benzo(b)fluoranthene								NR
Benzo(k)fluoranthene								NR
Benzo(a)pyrene								NR
Indeno(1,2,3-cd)pyrene								NR
Dibenz(a,h)anthracene								NR
Benzo(g,h,i)perylene								NR

NOTES:
Blank space - compound analyzed for but not detected
B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
E - estimated value
J - estimated value, compound present below CRQL but above IDL
R - analysis did not pass EPA QA/QC
N - Presumptive evidence of the presence of a compound, but can't be identified
NR - analysis not required
Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

SITE NAME: NTU CIRCUITS, INC.
IDOS: 02-8811-13
SAMPLING DATE: 11/30/88
EPA CASE NO.: 10959
LAB NAME: JTC

INORGANICS								
Sample ID No.	NYEA-S1	NYEA-S2(DUP)	NYEA-S3(MS/MSD)	NYEA-S4	NYEA-S5	NYEA-RIN1(MS/MSD)	NYEA-RIN2	NYEA-TBLK1
Traffic Report No.	MBR978	MBR979	MBR980	MBR981	MBR982	MBR983	MBR984	N/A
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	N/A
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L
Aluminum	1840 E	1730 E	947 E	1050 E	1070 E	R	R	NR
Antimony								NR
Arsenic	J	J	2.5					NR
Barium	J	J	J	J	J			NR
Beryllium								NR
Cadmium	1.3 E		21.6 E	3.2 E	2.2 E			NR
Calcium			22200	J				NR
Chromium	3.6	5.5	53.5	3.5	5.5			NR
Cobalt	J							NR
Copper	9.4 E	8.7 E	82 E	6 E				NR
Iron	3780	4990	7610	3060	3010	J	146	NR
Lead	R	R	R	R	R	R	R	NR
Magnesium	J	J	11700	J	J			NR
Manganese	R	R	R	R	R			NR
Mercury				0.13	0.63	R	R	NR
Nickel	R	R	R	R	R			NR
Potassium								NR
Selenium								NR
Silver								NR
Sodium								NR
Thallium								NR
Vanadium	J	J	J	J	J			NR
Zinc	15.5	17.1	145	15.3	9.6 E	J		NR

NOTES:
Blank space - compound analyzed for but not detected
E - estimated value
J - estimated value, compound present below CRDL but above IDL
R - analysis did not pass EPA QA/QC
NR - analysis not required

02-8811-13-STR
Rev No. 0

SAMPLING TRIP REPORT

SITE NAME: NTU Circuits, Inc.

TDD NO.: 02-8811-13

SAMPLING DATE: November 30, 1988

EPA CASE NO.: 10959

1. Site Location: See Figure 1

2. Sampling Locations: See Figure 2

3. Sample Descriptions: See Table 1

4. Laboratories Receiving Samples:

Sample Type	Name and Address of Laboratory
Organic	Industrial Corrosion Management 1152 Route 10 Randolph, NJ 07869
Inorganic	JTC Environmental Consultants 4 Research Place Suite L-10 Rockville, MD 20850

5. Sample Dispatch Data:

A total of five soil and three aqueous samples for organic analysis were shipped by FIT 2 personnel via Federal Express under airbill No. 9276045704 to Industrial Corrosion Management on November 30, 1988 at 1700 hours.

A total of five soil and two aqueous samples for inorganic analysis were shipped by FIT 2 personnel via Federal Express under Airbill No. 9276045715 to JTC Environmental Consultants on November 30, 1988 at 1700 hours.

TABLE I
SAMPLE DESCRIPTIONS
NTU Circuits, Inc.
Babylon, New York
Case No. 10959

NUS Sample Number	CLP Organic Sample Number	CLP Inorganic Sample Number	Collection Time	Sample Type	Sample Location
NYEA-S1	BW831	MBR978	1300	Soil	Soil sample from drainage pool SD-8; 3-4 feet below soil surface.
NYEA-S2**	BW832	MBR979	1300	Soil	Same location as S-1.
NYEA-S3*	BW833	MBR980	1230	Soil	Soil sample from drainage pool SD-7; 1-2 feet below soil surface.
NYEA-S4	BW834	MBR981	1150	Soil	Soil sample from drainage pool SD-3; 3-5 feet below soil surface.
NYEA-S5	BW835	MBR982	1130	Soil	Soil sample from drainage pool SD-2; 2-4 feet below soil surface.
NYEA-RIN1*	BW852	MBR983	1140	Aqueous	Trowel rinsate collected in field.
NYEA-RIN2	BW853	MBR984	1200	Aqueous	Auger rinsate collected in field.
NYEA-TBLK1	BW836	N/A	N/A	Aqueous	Trip blank, demonstrated analyte-free water obtained from NUS FIT 2.

* MS/MSD - Indicates that a sample was designated as a matrix spike (MS) and matrix spike duplicate (MSD) Additional sample volume was collected and shipped to the lab for MS/MSD analysis.

** Duplicate - Indicates that a sample was designated for duplicate analysis.

N/A Not Applicable

...uation of Metals Data for the
...ntract Laboratory Program
...ppendix A.2: Data Assessment Narrative

Date: Dec. 1988
Number: HW-2
Revision: 8

...ase# 10959 Site NTU CIRCUITS Matrix: Soil 5

Reviewer JOHN BULICH AB Lab JTC Water 2

Contractor NUS (FIT2) Other —

A.2.1 All data are of acceptable quality? Yes ____ No ✓

If no, exceptions are noted below with reason(s) for rejection or qualification as estimated value (J).

A) The following analytes are qualified as estimated (flagged with "J") because of not meeting the criteria:

1) CRDL stds Cd → MBR 978, 981, 982 Zn MBR 982

2) Spiked samples Cu, Mn → MBR 978-982 Cd → MBR 980
Hg → MBR 978-984

3) Lab duplicates Al, Co → MBR 978-982

4) Field duplicates Cd → MBR 979, 983, 984

B) The following analytes are qualified as rejected (red-lined) because of not meeting the criteria:

1) Lab duplicates Hg → MBR 983, 984 Al → MBR 983, 984
Mn, Ni → MBR 978-982

2) Field duplicates Pb → MBR 978-982

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

b Name: JTC ENVIRONMENTAL CNSLTS. Contract: 68-W8-0029

b Code: JTC Case No.: 10959 SAS No.: SDG No.: MBP978

J No.: 7/87

EPA Sample No.	Lab Sample ID.
MBP978	740828
MBP979	740827
MBP980	740829
MBP980D	740829D
MBP980S	740829S
MBP981	740830
MBP982	740831
MBP983	740831D
MBP983D	740831S
MBP983S	740832
MBP984	

ICP interelement corrections applied? Yes/No NO

ICP background corrections applied? Yes/No YES
If yes-were raw data generated before application of background corrections? Yes/No NO

ents:

---

ase of the data contained in this hardcopy data package and in the ıter-readable data submitted on floppy diskette has been authorized by ıatory Manager or the Manager's designee, as verified by the owing signature.

Lab Manager: _____

Date: 01/03/89

COVER PAGE - IN

7/

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBP979

Name: JTC ENVIRONMENTAL CNSLTS. Contract: 68-W8-0029

Code: JTC Case No.: 10959 SAS No.: SDG No.: MBP979

rix (soil/water): SOIL Lab Sample ID: 740829

el (low/med): LOW Date received: 12/01/88

olids: 82.5

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1840.0		J *	P
7440-36-0	Antimony	10.4	U		P
7440-38-2	Arsenic	1.7	B		F
7440-39-3	Barium	6.4	B		P
7440-41-7	Beryllium	.84	U		P
7440-43-9	Cadmium	1.3		J N*	P
7440-70-2	Calcium	215.0	U	*	P
7440-47-3	Chromium	3.6		*	P
7440-48-4	Cobalt	3.7	B	J *	P
7440-50-8	Copper	9.4		J N*	P
7439-89-6	Iron	3780.0			P
7439-92-1	Lead	7.0		*	F
7439-95-4	Magnesium	203.0	B	*	P
7439-96-5	Manganese	79.9		J N*	P
7439-97-6	Mercury	.11	U		CV
7440-02-0	Nickel	3.0	U	*	P
7440-09-7	Potassium	124.0	U		AF
7782-49-2	Selenium	.78	U		F
7440-22-4	Silver	2.0	U	J N	P
7440-23-5	Sodium	924.0	U		P
7440-28-0	Thallium	.48	U		F
7440-62-2	Vanadium	6.1	B		P
7440-66-6	Zinc	15.5		*	P
	Cyanide				NR

or Before: BROWN Clarity Before: Texture: MEDIUM

or After: COLORLESS Clarity After: Artifacts:

ments:

U.S. EPA - CLP

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBP979

Name: JTC ENVIRONMENTAL CNSLTS. Contract: 68-W8-0033

Code: JTC Case No.: 10959 SAS No.: SDG No.: MBP979

Matrix (soil/water): SOIL Lab Sample ID: 740837

Level (low/med): LOW Date received: 12/01/88

% Solids: 92.0

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1730.0		J*	P
7440-36-0	Antimony	10.4	UB		P
7440-38-2	Arsenic	1.7	B		F
7440-39-3	Barium	7.5	B		P
7440-41-7	Beryllium	.85	U		P
7440-43-9	Cadmium	.93	U	J N*	P
7440-70-2	Calcium	216.0	U	*	P
7440-47-3	Chromium	5.5		*	P
7440-48-4	Cobalt	3.0	U	J *	P
7440-50-8	Copper	9.7		J N*	P
7439-89-6	Iron	4990.0			P
7439-92-1	Lead	8.0		*	F
7439-95-4	Magnesium	158.0	B	*	P
7439-96-5	Manganese	60.0		* N*	P
7439-97-6	Mercury	.11	U		CV
7440-02-0	Nickel	5.0	U	*	P
7440-09-7	Potassium	125.0	U		AF
7782-49-2	Selenium	.78	U	W	F
7440-22-4	Silver	2.0	U	J N	P
7440-23-5	Sodium	928.0	U		P
7440-28-0	Thallium	.49	U		F
7440-62-2	Vanadium	7.0	B		P
7440-66-6	Zinc	17.1		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

000004

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBP990

Name: JTC ENVIRONMENTAL CNSLTS. Contract: 68-W8-0038

Code: JTC Case No.: 10959 SAS No.: SDG No.: MBP979

trix (soil/water): SOIL Lab Sample ID: 740828

vel (low/med): LOW Date received: 12/01/89

Solids: 91.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	947.0		J *	P
7440-36-0	Antimony	10.5	U		P
7440-38-2	Arsenic	2.5			F
7440-39-3	Barium	18.1	B		P
7440-41-7	Beryllium	.85	U		P
7440-43-9	Cadmium	21.6		J N *	P
7440-70-2	Calcium	22200.0		*	P
7440-47-3	Chromium	53.5		*	P
7440-48-4	Cobalt	3.1	U	J *	P
7440-50-8	Copper	82.0		J N *	P
7439-89-6	Iron	7610.0			P
7439-92-1	Lead	~~106.0~~		*	F
7439-95-4	Magnesium	11700.0		*	P
7439-96-5	Manganese	~~58.8~~		~~J N~~	P
7439-97-6	Mercury	.11	U		CV
7440-02-0	Nickel	~~27.0~~		*	P
7440-09-7	Potassium	126.0	U		A
7782-49-2	Selenium	.79	U		F
7440-22-4	Silver	2.0	U	J N	P
7440-23-5	Sodium	933.0	U		P
7440-28-0	Thallium	.48	U		F
7440-62-2	Vanadium	7.6	B		P
7440-66-6	Zinc	145.0		*	P
	Cyanide				NR

or Before: BROWN Clarity Before: Texture: MEDIUM

or After: COLORLESS Clarity After: Artifacts:

ments:

000005

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBP981

Name: JTC ENVIRONMENTAL CNSLTS. Contract: 68-W8-0029

Code: JTC Case No.: 10959 SAS No.: SDG No.: MBP979

Matrix (soil/water): SOIL Lab Sample ID: 740829

Level (low/med): LOW Date received: 12/01/88

% Solids: 92.1

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1050.0		J *	P
7440-36-0	Antimony	10.4	U		P
7440-38-2	Arsenic	1.1	U	W	F
7440-39-3	Barium	7.1	B		P
7440-41-7	Beryllium	.85	U		P
7440-43-9	Cadmium	3.2		J N*	P
7440-70-2	Calcium	323.0	B	*	P
7440-47-3	Chromium	2.5		*	P
7440-48-4	Cobalt	3.0	U	J *	P
7440-50-8	Copper	6.0		J N*	P
7439-89-6	Iron	3060.0			P
7439-92-1	Lead	~~5.6~~		*	F
7439-95-4	Magnesium	195.0	B	*	P
7439-96-5	Manganese	~~82.8~~		~~J N*~~	P
7439-97-6	Mercury	.13			CV
7440-02-0	Nickel	~~5.0~~	~~U~~	*	P
7440-09-7	Potassium	125.0	U		AA
7782-49-2	Selenium	.78	U		F
7440-22-4	Silver	BWD 2.0	U	J N	P
7440-23-5	Sodium	927 ~~920~~.0	U		P
7440-28-0	Thallium	.48	U		F
7440-62-2	Vanadium	5.2	B		P
7440-66-6	Zinc	15.2		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

000006

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBP983

Name: JTC ENVIRONMENTAL CNSLTS. Contract: 68-W8-0023

Code: JTC Case No.: 10959 SAS No.: SDG No.: MBP978

Matrix (soil/water): SOIL Lab Sample ID: 740830

Level (low/med): LOW Date received: 12/01/88

% Solids: 82.9

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1070.0		J *	P
7440-36-0	Antimony	11.6	U		P
7440-38-2	Arsenic	1.2	U	W	F
7440-39-3	Barium	3.8	B		P
7440-41-7	Beryllium	.94	U		P
7440-43-9	Cadmium	2.2		J N *	P
7440-70-2	Calcium	239.0	U	*	P
7440-47-3	Chromium	5.5		*	P
7440-48-4	Cobalt	2.4	U	J *	P
7440-50-8	Copper	5.5	U	N *	P
7439-89-6	Iron	3010.0			P
7439-92-1	Lead	[illegible]		*	P
7439-95-4	Magnesium	184.0	B	*	P
7439-96-5	Manganese	[illegible]		[illegible]	P
7439-97-6	Mercury	.63			CV
7440-02-0	Nickel	[illegible]	U	*	P
7440-09-7	Potassium	199.0	U		AF
7782-49-2	Selenium	.87	U	W	F
7440-22-4	Silver	2.2	U	J N	P
7440-23-5	Sodium	1030.0	U		P
7440-28-0	Thallium	.53	U		F
7440-62-2	Vanadium	5.1	B		P
7440-66-6	Zinc	9.6		J *	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

000007

U.S. EPA - CLP

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBP983

Name: JTC ENVIRONMENTAL CNSLTS. Contract: 68-W8-0033

Code: JTC Case No : 10959 SAS No.: SDG No.: MBP979

Matrix (soil/water): WATER Lab Sample ID: 740981

Level (low/med): LOW Date received: 12/01/89

% solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	~~212.0~~		*	P
7440-36-0	Antimony	48.0	U		P
7440-38-2	Arsenic	5.0	U		F
7440-39-3	Barium	9.8	U		P
7440-41-7	Beryllium	3.0	U		P
7440-43-9	Cadmium	4.3	U		P
7440-70-2	Calcium	992.0	U		P
7440-47-3	Chromium	7.9	U		P
7440-48-4	Cobalt	14.0	U		P
7440-50-8	Copper	23.0	U		P
7439-89-6	Iron	46.8	B		P
7439-92-1	Lead	~~3.0~~ 1.8	~~U~~		F
7439-95-4	Magnesium	480.0	U		P
7439-96-5	Manganese	10.0	U		P
7439-97-6	Mercury	~~20~~ 0.2	~~U~~	*	CV
7440-02-0	Nickel	23.0	U		P
7440-09-7	Potassium	575.0	U		P
7782-49-2	Selenium	3.6	U		F
7440-22-4	Silver	9.2	U	N	P
7440-23-5	Sodium	4270.0	U		P
7440-28-0	Thallium	2.2	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	15.7	B		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

000008

FORM I - IN 7/87

U.S. EPA - CLP

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBP984

Name: JTC ENVIRONMENTAL CNSLTS. Contract: 68-W8-0038

Code: JTC Case No.: 10959 SAS No.: SDG No.: MBP978

rix (soil/water): WATER Lab Sample ID: 740832

el (low/med): LOW Date received: 12/01/88

olids: .0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	~~164.0~~	~~U~~	*	P
7440-36-0	Antimony	48.0	U		P
7440-38-2	Arsenic	5.0	U		F
7440-39-3	Barium	8.6	U		P
7440-41-7	Beryllium	3.9	U		P
7440-43-9	Cadmium	4.2	U	J	P
7440-70-2	Calcium	992.0	U		P
7440-47-3	Chromium	7.8	U		P
7440-48-4	Cobalt	14.0	U		P
7440-50-8	Copper	22.0	U		P
7439-89-6	Iron	146.0			P
7439-92-1	Lead	~~1.1~~	~~U~~		P
7439-95-4	Magnesium	480.0	U		P
7439-96-5	Manganese	10.0	U		P
7439-97-6	Mercury	~~.20~~	~~U~~	*	CV
7440-02-0	Nickel	28.0	U		P
7440-09-7	Potassium	575.0	U		AP
7782-49-2	Selenium	3.6	U		F
7440-22-4	Silver	9.2	U	JN	P
7440-23-5	Sodium	4270.0	U		P
7440-28-0	Thallium	2.2	U		F
7440-62-2	Vanadium	18.0	U		P
7440-66-6	Zinc	16.0	U		P
	Cyanide				NR

or Before: COLORLESS Clarity Before: CLEAR Texture:

or After: COLORLESS Clarity After: CLEAR Artifacts:

ents:

000005

organics

STANDARD OPERATING PROCEDURE

Date: Nov. 2, 198?
Number: MM-
Revision: 3

Title: Attachment 2 - CLP Data Assessment Checklist
(GC and GC/MS Analysis)
PART II: MMB Review - TOTAL REVIEW

CASE # 10959 LAB ICM SITE NTL Circuits

19.0 Conclusions: (NOTE: Reviewers must red-line unacceptable data on sample data (FORM I) sheets; red-line data does not imply the compound is not present). Only the MMB reviewer has the authority to red-line unacceptable data. The letter J indicates an estimated value. In addition to the two definitions stated in the contract it also implies that the analyte is present but the quantitative value contains an unspecified degree of error. If an accurate quantity is desired, resampling/analysis is recommended.

19.1 Data Assessment 1) Blanks are analysed along with environmental samples to determine contamination not indigenous to the samples. In the volatile fraction the method blanks contained methylene Chloride, acetone, 1,1,1 trichloroethane, toluene and a TIC. The samples were flagged (U) non-detect (R) reject for the TIC): BW 831, 832, 833, 834, 835.

In the semi-volatile fraction the soil blank contained di-n-butylphthalate and some TIC's. The samples were flagged (U) non-detect and (R) reject for the TIC's: BW 831, 832, 833, 834, 835.

2) Calibrations are required to insure that the instrument is capable of producing acceptable quantitative data.

19.2 Contract Problems/Non-compliance

Reviewer's Signature: Pamela Greenlaw Date: 2/2/89

Verified By: Terry J Burke Date: 2/10/89

DATA ASSESSMENT: (cont.) #10959 2/2/89 Pamela Hranilar

2) In the VOA fraction the calibrations for water samples had %D/%RSD > 25/30% for acetone, 2-butanone, 4-methyl-2-pentanone and 2-hexanone. The samples were flagged (J) estimated: BW 852, 853, 836. The soil calibrations had %D/%RSD > 25/30% for chloroethane, acetone, 2-butanone and 1,1,1,trichloroethane. The samples were flagged (J) estimated BW 831-835. The continuing calibration associated with BW 834 was also non-compliant for bromomethane and xylene which were flagged (J) estimated

In the semivolatile fraction the initial calibration had %~~D~~/%RSD greater than 25/30% for nitrobenzene, 1,2,4 trichlorobenzene, 4 chloroaniline and 4-nitroaniline. The samples were flagged (J) estimated: BW 831-835, 852, 853 The continuing calibration associated with samples BW 831, 832, 834 and 835 had %D > 25% for 3nitroaniline, 4-nitrophenol and hexachlorobenzene. The samples were flagged (J) estimated. The continuing calibration associated with BW 833 had %D > 25% for benzoic acid, 2,4 dinitrophenol and pyrene which were flagged (J) estimated.

3) In the pesticide fraction the laboratory had some problems with sample BW 833 (high DBC recovery, unconfirmable but for DDT, high spike recoveries). Since these all appeared to be matrix problems no action was taken.

APPENDIX A.6

REJECTION SUMMARY FORM
(No. of Compounds/No. of Fractions (Samples)

Type of Review: total Date: 2/2/89 Case #: 10959

Project: NIH Circuits Lab Name: ICM

Reviewer's Initials: PJ Number of Samples: 55 soils/3 waters

Analytes Rejected Due to Exceeding Review Criteria:

	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
Acids (15)							7	0/105
B/N (50)				5/5			7	5/350
VOA (35)				20/5			8	20/280
PEST (20)							7	0/140
PCB (7)							7	0/49
TCDD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)			6/5				7	6/105
B/N (50)			37/1				7	37/350
VOA (35)			30/8	30/8 P.E.			8	30/280
PEST (20)							7	0/140
PCB (7)							7	0/49
TCDD (1)								

Region 2

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 10959 SITE NTH Circuits

LABORATORY ICM NO. OF SAMPLES/ MATRIX 3water/5soil

SDG # BW831 REVIEWER (IF NOT ESD) NUS/FIT

SOW# REVIEWER'S NAME Pamela Greenlaw

DPO: ACTION _____ FYI _____ COMPLETION DATE 2/6/89

DATA ASSESSMENT SUMMARY

		VOA	BNA	PEST	OTHER
1.	HOLDING TIMES	O	O	O	
2.	GC/MS TUNE/INSTR. PERFORM.	O	O	O	
3.	CALIBRATIONS	O	O	O	
4.	BLANKS	O	O	O	
5.	SURROGATES	O	O	O	
6.	MATRIX SPIKE/DUP	O	O	O	
7.	OTHER QC	O	O	O	
8.	INTERNAL STANDARDS	O	O	O	
9.	COMPOUND IDENTIFICATION	O	O	O	
10.	SYSTEM PERFORMANCE	O	O	O	
11.	OVERALL ASSESSMENT	O	O	O	

O = Data had no problems/or qualified due to minor problems.
M = Data qualified due to major problems.
Z = Data unacceptable.
X = Problems, but do not affect data.

ACTION ITEMS: _____

AREAS OF CONCERN: _____

NOTABLE PERFORMANCE: _____

NTU CIRCUITS INC.
#17/SI
5
3

ICM LABORATORIES
1152 Route 10
Randolph, NJ 07869
201-584-0330
FAX #201-584-0515

January 9, 1989

Contract Number 68-W8-0046

Region II

CASE # 10959
SDG # BW831

Date of Receipt of Final Sample in SDG: 12/01/88

Samples Included:

BW831 5
BW832 5
BW833 5
BW834 5
BW835 5
BW836 5
BW852 5
BW853 5

ICM
Richard S. Levine
President

Supelco (although Di-n-butyl phthalate is not a specified matrix spike compound in the SOW).

2. Sample BW852 had a tentatively identified compound detected at 20.28 minutes. Although this compound was not detected in the corresponding method blank, it is commonly found and is a laboratory contaminant.

Pesticides/PCBs

1. On the quant reports for the Pest/PCB analyses, the injected at time says 110111 11:11. The reason for this "default" time is that the Pesticide/PCB samples are run on HP Model 5890 GC using an HP3392 integrator, which collects the data. In order to generate the diskette and form deliverables, the data file from the 3392 integrator is transferred to the GC/MS mainframe computer - the HP1000. Only data points are transferred. Other data such as date and time of injection, inject size, etc. must be manually entered into the HP1000 under the miscellaneous section. The "injected at" section of the quant report and chromatogram is entered automatically by the HP1000 computer only for those samples run on the GC/MS system.

2. On the GC primary column 2250/2401, Endrin Ketone coelutes with DBC.

3. On the GC confirmation column OV-1, Endrin Aldehyde coelutes with 4,4'DDD and breakdown was therefore reported on Form VIII Pest-1 as combined.

4. On the confirmation column, OV-1, the DBC retention time shift did not meet criteria for BW833, BW833MS, BW833MSD. We believe this is due to matrix interference by a co-eluting compound for the following reasons:

a) DBC retention times shifted very little on all samples and standards run before and after BW833, BW833MS, BW833MSD and instrumental conditions did not change.

b) DBC recoveries calculated for these samples on this column are BW833 - 884%, BW833MS - 751%, BW833MSD - 1066%. The co-eluting compound could be a phthalate as detected in the BNA analysis.

5. DBC recovery is also high (406% to 421%) for the primary column, 2250/2401, for BW833, BW833MS, BW833MSD. This is probably due to a co-eluting compound, in particular bis-(2-ethyl hexyl) phthalate, also detected in the BNA fraction.

6. Spike recoveries for heptachlor and DDT are also inflated by co-eluting compounds. If these are recalculated by subtracting the co-eluting, but unconfirmed, peaks in the unspiked sample BW833, recoveries are:

	BW833MS	BW833MSD
Heptachlor	86%	89%
DDT	61%	64%

7. On sample BW833, DDT appeared as a "hit" in the windows of both columns. We do not, however, believe this compound is present in the sample since the calculated concentration levels from the two dissimilar columns are different, 330 pg for 2250/2401 and 900 pg for OV-1.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWB31

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BWB31

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 5.0 (g/mL) G Lab File ID: A3E87

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 8. Date Analyzed: 12/ 9/88

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11.	U
74-83-9	Bromomethane	11.	U
75-01-4	Vinyl Chloride	11.	U
75-00-3	Chloroethane	11.	U
75-09-2	Methylene Chloride	5.	B
67-64-1	Acetone	13.	B
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	5.	U
107-06-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	11.	U
71-55-6	1,1,1-Trichloroethane	2.5	J
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	11.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	11.	U
591-78-6	2-Hexanone	11.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	25	B
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
1330-20-7	Xylene (total)	5.	U

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BW831

Lab Name: ICM Contract: 68-W8-0048

Lab Code: ICM Case No.: 10250 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 5.0 (g/mL) G Lab File ID: A0687

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 8. Date Analyzed: 12/ 9/88

Column: (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 1 CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN HEXANE ISOMER	21.60	30.	BJK
2.					
3.					
4.					
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWG3_

Lab Name: ICM Contract: 68-W8-0048

Lab Code: ICM Case No.: 10955 SAS No.: SDG No.: BWG31

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 5.0 (g/mL) G Lab File ID: A3675

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 9. Date Analyzed: 12/ 9/88

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	C
74-87-3	Chloromethane	11.	U
74-83-9	Bromomethane	11.	U
75-01-4	Vinyl Chloride	11.	U
75-00-3	Chloroethane	11.	UJ
75-09-2	Methylene Chloride	2.5	BUJ
67-64-1	Acetone	14.	B UJ
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	5.	U
107-06-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	11.	UJ
71-55-6	1,1,1-Trichloroethane	2.5	BUJ
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	11.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	11.	U
591-78-6	2-Hexanone	11.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	1.5	BJ
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
1330-20-7	Xylene (total)	5.	U

[illegible] ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED [illegible]

Lab Name: [illegible] Contract: [illegible]

Lab Code: [illegible] Case No.: [illegible] SAS No.: [illegible] SDG No.: [illegible]

Matrix: (soil/water) SOIL Lab Sample ID: [illegible]

Sample wt/vol: 5.0 (g/mL) G Lab File ID: [illegible]

Level: (low/med) LOW Date Received: [illegible]

% Moisture: not dec. [illegible] Date Analyzed: [illegible]

Column: (pack/cap) PACK Dilution Factor: [illegible]

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. - -	UNKNOWN HEXANE ISOMER	21.52	10.	R
2. 1678-92-8	Cyclohexane, propyl- (8CI9CI	35.01	20.	J
3. - -	UNKNOWN HYDROCARBON	29.78	7.	J
4. - -	UNKNOWN HYDROCARBON	30.09	7.	J
5. - -	UNKNOWN	37.01	8.	J
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FORM I VOA-TIC 1/87 Rev.

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW830

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 1.0 (g/mL) G Lab File ID: A9692

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 24. Date Analyzed: 12/ 9/88

Column: (pack/cap) PACK Dilution Factor: 5.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	66.	U
74-83-9	Bromomethane	66.	U
75-01-4	Vinyl Chloride	66.	U
75-00-3	Chloroethane	66.	U J
75-09-2	Methylene Chloride	~~24~~ 33	~~B~~ U
67-64-1	Acetone	99.	~~B~~ U J
75-15-0	Carbon Disulfide	33.	U
75-35-4	1,1-Dichloroethene	33.	U
75-34-3	1,1-Dichloroethane	33.	U
540-59-0	1,2-Dichloroethene (total)	33.	U
67-66-3	Chloroform	33.	U
107-06-2	1,2-Dichloroethane	33.	U
78-93-3	2-Butanone	66.	U J
71-55-6	1,1,1-Trichloroethane	~~16~~ 33	~~B~~ U J
56-23-5	Carbon Tetrachloride	33.	U
108-05-4	Vinyl Acetate	66.	U
75-27-4	Bromodichloromethane	33.	U
78-87-5	1,2-Dichloropropane	33.	U
10061-01-5	cis-1,3-Dichloropropene	33.	U
79-01-6	Trichloroethene	33.	U
124-48-1	Dibromochloromethane	33.	U
79-00-5	1,1,2-Trichloroethane	33.	U
71-43-2	Benzene	33.	U
10061-02-6	trans-1,3-Dichloropropene	33.	U
75-25-2	Bromoform	33.	U
108-10-1	4-Methyl-2-Pentanone	66.	U
591-78-6	2-Hexanone	66.	U
127-18-4	Tetrachloroethene	33.	U
79-34-5	1,1,2,2-Tetrachloroethane	33.	U
108-88-3	Toluene	~~12~~ 33	~~B~~ U
108-90-7	Chlorobenzene	33.	U
100-41-4	Ethylbenzene	33.	U
100-42-5	Styrene	33.	U
1330-20-7	Xylene (total)	33.	U

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SW833

Lab Name: TDM Contract: 68-W8-[illegible]

Lab Code: TDM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 1.0 (g/mL) G Lab File ID: A9693

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 24. Date Analyzed: 12/ 9/88

Column: (pack/cap) PACK Dilution Factor: 5.00

Number TICs found: 3 CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN HEXANE ISOMER	21.60	200.	~~J~~ R
2.	80-56-8	alpha.-Pinene (ACN	25.99	200.	J
3.	- -	UNKNOWN HYDROCARBON	73.58	40.	J
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW834

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 5.0 (g/mL) G Lab File ID: A9707

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 9. Date Analyzed: 12/10/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11.	U
74-83-9	Bromomethane	11.	UJ
75-01-4	Vinyl Chloride	11.	U
75-00-3	Chloroethane	11.	UJ
75-09-2	Methylene Chloride	2.5	B U
67-64-1	Acetone	11.	B UJ
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	5.	U
107-06-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	11.	UJ
71-55-6	1,1,1-Trichloroethane	2.5	B UJ
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	11.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	11.	U
591-78-6	2-Hexanone	11.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	2.5	B U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
1330-20-7	Xylene (total)	5.	U J

VOLATILE ORGANICS ANALYSIS - TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Contract: 68-W8-0048

Lab Name: ICM

SDG No.: RW8C1

Lab Code: ICM Case No.: 10557 SAS No.:

Lab Sample ID:

Matrix: (soil/water) SOIL

Lab File ID: A9707

Sample wt/vol: 5.0 (g/mL) G

Date Received: 12/ 1/88

Level: (low/med) LOW

Date Analyzed: 12/10/88

% Moisture: not dec. 9.

Dilution Factor: 1.00

Column: (pack/cap) PACK

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 1

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN HEXANE ISOMER	21.63	20.	~~JR~~
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FORM I VOA-TIC

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VOLATILE ORGANICS ANALYSIS DATA SHEET

BLU935

Lab Name: ICM Contract: 68-W8-

Lab Code: ICM Case No.: 10959 SAS No.:

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 5.0 (g/mL) G Lab File ID: A9677

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 18. Date Analyzed: 12/ 8/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl Chloride	12.	U
75-00-3	Chloroethane	12.	U J
75-09-2	Methylene Chloride	2.6	~~U~~ J
67-64-1	Acetone	17.	~~U~~ J
75-15-0	Carbon Disulfide	6.	U
75-35-4	1,1-Dichloroethene	6.	U
75-34-3	1,1-Dichloroethane	6.	U
540-59-0	1,2-Dichloroethene (total)	6.	U
67-66-3	Chloroform	6.	U
107-06-2	1,2-Dichloroethane	6.	U
78-93-3	2-Butanone	12.	U J
71-55-6	1,1,1-Trichloroethane	2.6	~~U~~ J
56-23-5	Carbon Tetrachloride	6.	U
108-05-4	Vinyl Acetate	12.	U
75-27-4	Bromodichloromethane	6.	U
78-87-5	1,2-Dichloropropane	6.	U
10061-01-5	cis-1,3-Dichloropropene	6.	U
79-01-6	Trichloroethene	6.	U
124-48-1	Dibromochloromethane	6.	U
79-00-5	1,1,2-Trichloroethane	6.	U
71-43-2	Benzene	6.	U
10061-02-6	trans-1,3-Dichloropropene	6.	U
75-25-2	Bromoform	6.	U
108-10-1	4-Methyl-2-Pentanone	12.	U
591-78-6	2-Hexanone	12.	U
127-18-4	Tetrachloroethene	6.	U
79-34-5	1,1,2,2-Tetrachloroethane	6.	U
108-88-3	Toluene	2.6	~~U~~ J
108-90-7	Chlorobenzene	6.	U
100-41-4	Ethylbenzene	6.	U
100-42-5	Styrene	6.	U
1330-20-7	Xylene (total)	6.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BWS3S

Lab Name: ICM Contract: 68-WS-0048

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BWS31

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 5.0 (g/mL) G Lab File ID: A9677

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 18. Date Analyzed: 12/ 8/88

Column: (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 6 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN HEXANE ISOMER	21.64	10.	~~J~~ R
2.	80-56-8	.alpha.-Pinene (ACN)	28.97	10.	J
3.	1678-92-8	PROPYL CYCLOHEXANE	34.98	10.	J
4.	- -	UNKNOWN	29.75	10.	J
5.	- -	UNKNOWN	30.17	10.	J
6.	- -	UNKNOWN	37.62	10.	J
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW852

Contract: 68-W8-0046

Lab Name: ICM

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) WATER Lab Sample ID:

Sample wt/vol: 5. (g/mL) ML Lab File ID: A9649

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec.100. Date Analyzed: 12/ 7/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	.8	BJ
75-09-2	Methylene Chloride	45.	B
67-64-1	Acetone	5.	U
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	J
67-66-3	Chloroform	5.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	5.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	10.	U
108-05-4	Vinyl Acetate	5.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	5.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	.5	BJ
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
1330-20-7	Xylene (total)	5.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BW832

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) WATER Lab Sample ID:

Sample wt/vol: 5. (g/mL) ML Lab File ID: A9649

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec.100. Date Analyzed: 12/ 7/88

Column: (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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EPA SAMPLE NO.

BW853

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Contract: 68-W8-0046

Lab Name: ICM

Lab Code: ICM Case No.: 10320 SAS No.: SDG No.: BW831

Matrix: (soil/water) WATER Lab Sample ID:

Sample wt/vol: 5. (g/mL) Lab File ID: A9652

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec.100. Date Analyzed: 12/ 7/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q

CAS NO.	COMPOUND		
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	4.	BJ
67-64-1	Acetone	23.	BJ
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	6.	
107-06-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	UJ
71-55-6	1,1,1-Trichloroethane	6.	BJ
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	10.	UJ
108-10-1	4-Methyl-2-Pentanone	10.	UJ
591-78-6	2-Hexanone	5.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	2.	BJ
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
1330-20-7	Xylene (total)	5.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BW853

Contract: 68-W8-0046

Lab Name: ICM

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) WATER Lab Sample ID:

Sample wt/vol: 5. (g/mL) ML Lab File ID: A9652

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec.100. Date Analyzed: 12/ 7/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 1

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN HEXANE ISOMER	21.61	10.	BJ
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW836

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) WATER Lab Sample ID:

Sample wt/vol: 5. (g/mL) ML Lab File ID: A9653

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec.100. Date Analyzed: 12/ 7/88

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L C

CAS NO.	COMPOUND		
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	4.	BJ
67-64-1	Acetone	74.	BJ
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	6.	
107-06-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	UJ
71-55-6	1,1,1-Trichloroethane	3.	BJ
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	10.	UJ
108-10-1	4-Methyl-2-Pentanone	10.	UJ
591-78-6	2-Hexanone	5.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	1.	BJ
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
1330-20-7	Xylene (total)	5.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BW836

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) WATER Lab Sample ID:

Sample wt/vol: 5. (g/mL) ML Lab File ID: A9653

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec.100. Date Analyzed: 12/ 7/88

Column: (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN	12.94	6.	J
2.	- -	UNKNOWN HEXANE ISOMER	21.62	10.	BJ
3.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW831

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 30. (g/mL) G Lab File ID: C2320

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 8. dec. 0. Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/ 4/89

GPC Cleanup: (Y/N) N pH: 6.8 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360.	U
111-44-4	bis(2-Chloroethyl)ether	360.	U
95-57-8	2-Chlorophenol	360.	U
541-73-1	1,3-Dichlorobenzene	360.	U
106-46-7	1,4-Dichlorobenzene	360.	U
100-51-6	Benzyl alcohol	360.	U
95-50-1	1,2-Dichlorobenzene	360.	U
95-48-7	2-Methylphenol	360.	U
108-60-1	bis(2-Chloroisopropyl)ether	360.	U
106-44-5	4-Methylphenol	360.	U
621-64-7	N-Nitroso-di-n-propylamine	360.	U
67-72-1	Hexachloroethane	360.	U
98-95-3	Nitrobenzene	360.	UJ
78-59-1	Isophorone	360.	U
88-75-5	2-Nitrophenol	360.	U
105-67-9	2,4-Dimethylphenol	360.	U
65-85-0	Benzoic acid	1800.	U
111-91-1	bis(2-Chloroethoxy)methane	360.	U
120-83-2	2,4-Dichlorophenol	360.	U
120-82-1	1,2,4-Trichlorobenzene	360.	UJ
91-20-3	Naphthalene	360.	U
106-47-8	4-Chloroaniline	360.	UJ
87-68-3	Hexachlorobutadiene	360.	U
59-50-7	4-Chloro-3-methylphenol	360.	U
91-57-6	2-Methylnaphthalene	360.	U
77-47-4	Hexachlorocyclopentadiene	360.	U
88-06-2	2,4,6-Trichlorophenol	360.	U
95-95-4	2,4,5-Trichlorophenol	1800.	U
91-58-7	2-Chloronaphthalene	360.	U
88-74-4	2-Nitroaniline	1800.	U
131-11-3	Dimethylphthalate	360.	U
208-96-8	Acenaphthylene	360.	U
606-20-2	2,6-Dinitrotoluene	360.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW831

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 30. (g/mL) G Lab File ID: C2320

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 8. dec. 0. Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/ 4/89

GPC Cleanup: (Y/N) N pH: 6.8 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1800.	U J
83-32-9	Acenaphthene	360.	U
51-28-5	2,4-Dinitrophenol	1800.	U
100-02-7	4-Nitrophenol	1800.	U J
132-64-9	Dibenzofuran	360.	U
121-14-2	2,4-Dinitrotoluene	360.	U
84-66-2	Diethylphthalate	360.	U
7005-72-3	4-Chlorophenyl-phenylether	360.	U
86-73-7	Fluorene	360.	U
100-01-6	4-Nitroaniline	1800.	U J
534-52-1	4,6-Dinitro-2-methylphenol	1800.	U
86-30-6	N-Nitrosodiphenylamine (1)	360.	U
101-55-3	4-Bromophenyl-phenylether	360.	U
118-74-1	Hexachlorobenzene	360.	U J
87-86-5	Pentachlorophenol	1800.	U
85-01-8	Phenanthrene	360.	U
120-12-7	Anthracene	360.	U
84-74-2	Di-n-butylphthalate	~~1400~~ 360.	~~B~~ U
206-44-0	Fluoranthene	360.	U
129-00-0	Pyrene	360.	U
85-68-7	Butylbenzylphthalate	360.	U
91-94-1	3,3'-Dichlorobenzidine	720.	U
56-55-3	Benzo(a)anthracene	360.	U
218-01-9	Chrysene	360.	U
117-81-7	bis(2-Ethylhexyl)phthalate	360.	U
117-84-0	Di-n-octylphthalate	360.	U
205-99-2	Benzo(b)fluoranthene	360.	U
207-08-9	Benzo(k)fluoranthene	360.	U
50-32-8	Benzo(a)pyrene	360.	U
193-39-5	Indeno(1,2,3-cd)pyrene	360.	U
53-70-3	Dibenz(a,h)anthracene	360.	U
191-24-2	Benzo(g,h,i)perylene	360.	U

(1) - Cannot be separated from diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BW831

Contract: 68-W8-0046

Lab Name: ICM

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 30. (g/mL) G Lab File ID: C2320

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 8. dec. 0. Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/ 4/89

GPC Cleanup: (Y/N) N pH: 6.8 Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 8

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	4127-47-3	Cyclopropane, 1,1,2,2-tetram	1.70	7000.	BJR
2.	- -	UNKNOWN Condensation product	2.10	700.	BJRA
3.	- -	UNKNOWN Condensation product	2.47	20000.	BJRA
4.	- -	UNKNOWN Condensation product	3.83	900.	BJRA
5.	- -	UNKNOWN Condensation product	6.50	300.	JRA
6.	1632-73-1	Bicyclo[2.2.1]heptan-2-ol, 1	8.29	200.	J
7.	- -	UNKNOWN Compound	15.22	100.	J
8.	- -	UNKNOWN PHTHALATE	18.18	600.	BJR
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW832

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 30. (g/mL) G Lab File ID: C2321

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 9. dec. 0. Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/ 4/89

GPC Cleanup: (Y/N) N pH: 6.4 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360.	U
111-44-4	bis(2-Chloroethyl)ether	360.	U
95-57-8	2-Chlorophenol	360.	U
541-73-1	1,3-Dichlorobenzene	360.	U
106-46-7	1,4-Dichlorobenzene	360.	U
100-51-6	Benzyl alcohol	360.	U
95-50-1	1,2-Dichlorobenzene	360.	U
95-48-7	2-Methylphenol	360.	U
108-60-1	bis(2-Chloroisopropyl)ether	360.	U
106-44-5	4-Methylphenol	360.	U
621-64-7	N-Nitroso-di-n-propylamine	360.	U
67-72-1	Hexachloroethane	360.	U
98-95-3	Nitrobenzene	360.	UJ
78-59-1	Isophorone	360.	U
88-75-5	2-Nitrophenol	360.	U
105-67-9	2,4-Dimethylphenol	360.	U
65-85-0	Benzoic acid	1800.	U
111-91-1	bis(2-Chloroethoxy)methane	360.	U
120-83-2	2,4-Dichlorophenol	360.	U
120-82-1	1,2,4-Trichlorobenzene	360.	UJ
91-20-3	Naphthalene	360.	U
106-47-8	4-Chloroaniline	360.	UJ
87-68-3	Hexachlorobutadiene	360.	U
59-50-7	4-Chloro-3-methylphenol	360.	U
91-57-6	2-Methylnaphthalene	360.	U
77-47-4	Hexachlorocyclopentadiene	360.	U
88-06-2	2,4,6-Trichlorophenol	360.	U
95-95-4	2,4,5-Trichlorophenol	1800.	U
91-58-7	2-Chloronaphthalene	360.	U
88-74-4	2-Nitroaniline	1800.	U
131-11-3	Dimethylphthalate	360.	U
208-96-8	Acenaphthylene	360.	U
606-20-2	2,6-Dinitrotoluene	360.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW832

Contract: 68-W8-0046

Lab Name: ICM

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 30. (g/mL) G Lab File ID: C2321

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 9. dec. 0. Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/ 4/89

GPC Cleanup: (Y/N) N pH: 6.4 Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Q

CAS NO.	COMPOUND		
99-09-2	3-Nitroaniline	1800.	UJ
83-32-9	Acenaphthene	360.	U
51-28-5	2,4-Dinitrophenol	1800.	UJ
100-02-7	4-Nitrophenol	1800.	UJ
132-64-9	Dibenzofuran	360.	U
121-14-2	2,4-Dinitrotoluene	360.	U
84-66-2	Diethylphthalate	360.	U
7005-72-3	4-Chlorophenyl-phenylether	360.	U
86-73-7	Fluorene	360.	U
100-01-6	4-Nitroaniline	1800.	UJ
534-52-1	4,6-Dinitro-2-methylphenol	1800.	U
86-30-6	N-Nitrosodiphenylamine (1)	360.	U
101-55-3	4-Bromophenyl-phenylether	360.	U
118-74-1	Hexachlorobenzene	360.	UJ
87-86-5	Pentachlorophenol	1800.	U
85-01-8	Phenanthrene	360.	U
120-12-7	Anthracene	360.	U
84-74-2	Di-n-butylphthalate	360.	U
206-44-0	Fluoranthene	360.	U
129-00-0	Pyrene	360.	U
85-68-7	Butylbenzylphthalate	360.	U
91-94-1	3,3'-Dichlorobenzidine	720.	U
56-55-3	Benzo(a)anthracene	360.	U
218-01-9	Chrysene	360.	U
117-81-7	bis(2-Ethylhexyl)phthalate	360.	U
117-84-0	Di-n-octylphthalate	360.	U
205-99-2	Benzo(b)fluoranthene	360.	U
207-08-9	Benzo(k)fluoranthene	360.	U
50-32-8	Benzo(a)pyrene	360.	U
193-39-5	Indeno(1,2,3-cd)pyrene	360.	U
53-70-3	Dibenz(a,h)anthracene	360.	U
191-24-2	Benzo(g,h,i)perylene	360.	U

(1) - Cannot be separated from diphenylamine

1/87 R

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: BW832

Contract: 68-W8-0046

Lab Name: ICM

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 30. (g/mL) G Lab File ID: C2321

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 9. dec. 0. Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/ 4/89

GPC Cleanup: (Y/N) N pH: 6.4 Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 10

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	4127-47-3	Cyclopropane, 1,1,2,2-tetram	1.63	100.	BJR
2.	- -	UNKNOWN Condensation product	1.78	200.	BJR A
3.	- -	UNKNOWN Condensation product	2.22	5000.	BJR A
4.	- -	UNKNOWN Condensation product	3.88	2000.	BJR A
5.	- -	UNKNOWN Compound	6.29	600.	J
6.	- -	UNKNOWN Condensation product	6.52	300.	JR A
7.	74367-34-3	Propanoic acid, 2-methyl-, 3	12.36	100.	J
8.	- -	UNKNOWN Compound	15.24	100.	J
9.	- -	UNKNOWN PHTHALATE	18.20	1000.	BJR
10.	4337-65-9	Hexanedioic acid, mono(2-eth	23.11	200.	BJR
11.					
12.					
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1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

BW833

Lab Name: [illegible] Contract: 68-W8-0046

Lab Code: [illegible] Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 31. (g/mL) G Lab File ID: C2330

Level: (low/med) LOW Date Received: 12/ 1/86

% Moisture: not dec. 24. dec. 14. Date Extracted: 12/ 7/86

Extraction: (Sep.Funn/Cont/Sonc) SONC Date Analyzed: 1/ 5/87

GPC Cleanup: (Y/N) N pH: 7.7 Dilution Factor: 2.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	860.	U
111-44-4	bis(2-Chloroethyl)ether	860.	U
95-57-8	2-Chlorophenol	860.	U
541-73-1	1,3-Dichlorobenzene	860.	U
106-46-7	1,4-Dichlorobenzene	860.	U
100-51-6	Benzyl alcohol	860.	U
95-50-1	1,2-Dichlorobenzene	860.	U
95-48-7	2-Methylphenol	860.	U
108-60-1	bis(2-Chloroisopropyl)ether	860.	U
106-44-5	4-Methylphenol	860.	U
621-64-7	N-Nitroso-di-n-propylamine	860.	U
67-72-1	Hexachloroethane	860.	U
98-95-3	Nitrobenzene	860.	U J
78-59-1	Isophorone	220.	J
88-75-5	2-Nitrophenol	860.	U
105-67-9	2,4-Dimethylphenol	860.	U
65-85-0	Benzoic acid	4300.	U J
111-91-1	bis(2-Chloroethoxy)methane	860.	U
120-83-2	2,4-Dichlorophenol	860.	U
120-82-1	1,2,4-Trichlorobenzene	860.	U J
91-20-3	Naphthalene	860.	U
106-47-8	4-Chloroaniline	860.	U J
87-68-3	Hexachlorobutadiene	860.	U
59-50-7	4-Chloro-3-methylphenol	860.	U
91-57-6	2-Methylnaphthalene	860.	U
77-47-4	Hexachlorocyclopentadiene	860.	U
88-06-2	2,4,6-Trichlorophenol	860.	U
95-95-4	2,4,5-Trichlorophenol	4300.	U
91-58-7	2-Chloronaphthalene	860.	U
88-74-4	2-Nitroaniline	4300.	U
131-11-3	Dimethylphthalate	860.	U
208-96-8	Acenaphthylene	860.	U
606-20-2	2,6-Dinitrotoluene	860.	U

FORM 1 SV-1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Bwe31

Contract: 68-W8-0046

Lab Name: IEM

Lab Code: IEM Case No.: 10953 SAS No.: SDG No.: Bwe31

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 31. (g/mL) G Lab File ID: 02330

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 24. dec. 14. Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/ 5/89

GPC Cleanup: (Y/N) N pH: 7.7 Dilution Factor: 2.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		
99-09-2	3-Nitroaniline	4300.	U
83-32-9	Acenaphthene	860.	U
51-28-5	2,4-Dinitrophenol	4300.	U J
100-02-7	4-Nitrophenol	4300.	U
132-64-9	Dibenzofuran	860.	U
121-14-2	2,4-Dinitrotoluene	860.	U
84-66-2	Diethylphthalate	860.	U
7005-72-3	4-Chlorophenyl-phenylether	860.	U
86-73-7	Fluorene	4300.	U J
100-01-6	4-Nitroaniline	4300.	U
534-52-1	4,6-Dinitro-2-methylphenol	860.	U
86-30-6	N-Nitrosodiphenylamine (1)	860.	U
101-55-3	4-Bromophenyl-phenylether	860.	U
118-74-1	Hexachlorobenzene	4300.	U
87-86-5	Pentachlorophenol	860.	U
85-01-8	Phenanthrene	860.	U
120-12-7	Anthracene	~~360~~ 860.	U
84-74-2	Di-n-butylphthalate	170.	J
206-44-0	Fluoranthene	280.	J
129-00-0	Pyrene	3300.	
85-68-7	Butylbenzylphthalate	1700.	U
91-94-1	3,3'-Dichlorobenzidine	860.	U
56-55-3	Benzo(a)anthracene	860.	U
218-01-9	Chrysene	9100.	
117-81-7	bis(2-Ethylhexyl)phthalate	870.	
117-84-0	Di-n-octylphthalate	860.	U
205-99-2	Benzo(b)fluoranthene	860.	U
207-08-9	Benzo(k)fluoranthene	860.	U
50-32-8	Benzo(a)pyrene	860.	U
193-39-5	Indeno(1,2,3-cd)pyrene	860.	U
53-70-3	Dibenz(a,h)anthracene	860.	U
191-24-2	Benzo(g,h,i)perylene	860.	U

(1) - Cannot be separated from diphenylamine

1/87 Rev.

FORM I SV-2

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ICM Contract: 68-W8-0044

Lab Code: ICM Case No.: 10555 SAS No.: SDG No.: BW631

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 31. (g/mL) G Lab File ID: 02339

Level: (low/med) LOW Date Received: 12/ /88

% Moisture: not dec. 24. dec. 14. Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/ 5/89

GPC Cleanup: (Y/N) N pH: 7.7 Dilution Factor: 1.00

Number TICs found: 28 CONCENTRATION UNITS: (ug/L or ug/kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN Condensation product	1.35	3000.	BJ
2.	- -	UNKNOWN Condensation product	2.40	60000.	BJ
3.	- -	UNKNOWN Condensation product	3.65	2000.	BJ
4.	1120-21-4	Undecane	9.07	2000.	J
5.	7045-71-8	Undecane, 2-methyl- (8CI,9CI)	9.37	500.	J
6.	17301-28-5	Undecane, 3,6-dimethyl- (8CI	10.01	2000.	J
7.	62108-21-8	Decane, 6-ethyl-2-methyl- (9	11.35	6000.	J
8.	74645-98-0	Dodecane, 2,7,10-trimethyl-	12.46	1000.	J
9.	- -	UNKNOWN HYDROCARBON	12.75	4000.	J
10.	3891-98-3	Dodecane, 2,6,10-trimethyl-	14.04	5000.	J
11.	- -	UNKNOWN HYDROCARBON	14.38	2000.	J
12.	- -	UNKNOWN HYDROCARBON	14.68	1000.	J
13.	- -	UNKNOWN HYDROCARBON	14.78	1000.	J
14.	544-76-3	Hexadecane (8CI,9CI)	15.22	4000.	J
15.	- -	UNKNOWN HYDROCARBON	15.78	3000.	J
16.	- -	UNKNOWN HYDROCARBON	16.38	7000.	J
17.	1921-70-6	Pentadecane, 2,6,10,14-tetra	16.44	3000.	J
18.	21164-95-4	Hexadecane, 7,9-dimethyl- (8	17.46	5000.	J
19.	638-36-8	Hexadecane, 2,6,10,14-tetram	17.58	8000.	J
20.	629-92-5	Nonadecane (8CI,9CI)	18.48	3000.	J
21.	112-95-8	Eicosane (8CI,9CI)	19.48	6000.	J
22.	- -	UNKNOWN HYDROCARBON	20.19	10000.	J
23.	54833-48-6	Heptadecane, 2,6,10,15-tetra	20.41	7000.	J
24.	- -	UNKNOWN HYDROCARBON	21.33	5000.	J
25.	- -	UNKNOWN HYDROCARBON	22.26	3000.	J
26.	- -	UNKNOWN HYDROCARBON	23.04	2000.	J
27.	7225-6-1	Heptadecane, 9-octyl-	26.84	2000.	J
28.	- -	UNKNOWN Cholesterol isomer	28.18	2000.	J
29.					
30.					

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW834

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 31. (g/mL) G Lab File ID: C2322

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 9. dec. 3. Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/ 4/89

GPC Cleanup: (Y/N) N pH: 7.3 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360.	U
111-44-4	bis(2-Chloroethyl)ether	360.	U
95-57-8	2-Chlorophenol	360.	U
541-73-1	1,3-Dichlorobenzene	360.	U
106-46-7	1,4-Dichlorobenzene	360.	U
100-51-6	Benzyl alcohol	360.	U
95-50-1	1,2-Dichlorobenzene	360.	U
95-48-7	2-Methylphenol	360.	U
108-60-1	bis(2-Chloroisopropyl)ether	360.	U
106-44-5	4-Methylphenol	360.	U
621-64-7	N-Nitroso-di-n-propylamine	360.	U
67-72-1	Hexachloroethane	360.	U
98-95-3	Nitrobenzene	360.	U J
78-59-1	Isophorone	360.	U
88-75-5	2-Nitrophenol	360.	U
105-67-9	2,4-Dimethylphenol	360.	U
65-85-0	Benzoic acid	1800.	U
111-91-1	bis(2-Chloroethoxy)methane	360.	U
120-83-2	2,4-Dichlorophenol	360.	U
120-82-1	1,2,4-Trichlorobenzene	360.	U J
91-20-3	Naphthalene	360.	U
106-47-8	4-Chloroaniline	360.	U J
87-68-3	Hexachlorobutadiene	360.	U
59-50-7	4-Chloro-3-methylphenol	360.	U
91-57-6	2-Methylnaphthalene	360.	U
77-47-4	Hexachlorocyclopentadiene	360.	U
88-06-2	2,4,6-Trichlorophenol	360.	U
95-95-4	2,4,5-Trichlorophenol	1800.	U
91-58-7	2-Chloronaphthalene	360.	U
88-74-4	2-Nitroaniline	1800.	U
131-11-3	Dimethylphthalate	360.	U
208-96-8	Acenaphthylene	360.	U
606-20-2	2,6-Dinitrotoluene	360.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW834

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 31. (g/mL) G Lab File ID: C2322

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 9. dec. 0. Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/ 4/89

GPC Cleanup: (Y/N) N pH: 7.3 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1800.	UJ
83-32-9	Acenaphthene	360.	U
51-28-5	2,4-Dinitrophenol	1800.	U
100-02-7	4-Nitrophenol	1800.	UJ
132-64-9	Dibenzofuran	360.	U
121-14-2	2,4-Dinitrotoluene	360.	U
84-66-2	Diethylphthalate	360.	U
7005-72-3	4-Chlorophenyl-phenylether	360.	U
86-73-7	Fluorene	360.	U
100-01-6	4-Nitroaniline	1800.	UJ
534-52-1	4,6-Dinitro-2-methylphenol	1800.	U
86-30-6	N-Nitrosodiphenylamine (1)	360.	U
101-55-3	4-Bromophenyl-phenylether	360.	U
118-74-1	Hexachlorobenzene	360.	UJ
87-86-5	Pentachlorophenol	1800.	U
85-01-8	Phenanthrene	360.	U
120-12-7	Anthracene	360.	U
84-74-2	Di-n-butylphthalate	~~360.~~ 1800.	~~U~~ U
206-44-0	Fluoranthene	360.	U
129-00-0	Pyrene	360.	U
85-68-7	Butylbenzylphthalate	360.	U
91-94-1	3,3'-Dichlorobenzidine	720.	U
56-55-3	Benzo(a)anthracene	360.	U
218-01-9	Chrysene	360.	U
117-81-7	bis(2-Ethylhexyl)phthalate	360.	U
117-84-0	Di-n-octylphthalate	360.	U
205-99-2	Benzo(b)fluoranthene	360.	U
207-08-9	Benzo(k)fluoranthene	360.	U
50-32-8	Benzo(a)pyrene	360.	U
193-39-5	Indeno(1,2,3-cd)pyrene	360.	U
53-70-3	Dibenz(a,h)anthracene	360.	U
191-24-2	Benzo(g,h,i)perylene	360.	U

(1) - Cannot be separated from diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BW834

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 31. (g/mL) G Lab File ID: C2322

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 9. dec. 0. Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/ 4/89

GPC Cleanup: (Y/N) N pH: 7.3 Dilution Factor: 1.00

Number TICs found: 10 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN Condensation product	1.82	300.	BJ R A
2.	- -	UNKNOWN Condensation product	2.28	10000.	BJ R A
3.	- -	UNKNOWN Condensation product	3.92	3000.	BJ R A
4.	- -	UNKNOWN Condensation product	6.52	400.	J R A
5.	- -	UNKNOWN Compound	12.03	100.	J
6.	74367-34-3	Propanoic acid, 2-methyl-, 3	12.34	200.	J
7.	- -	UNKNOWN Compound	15.23	200.	J
8.	55045-11-9	Tridecane, 5-propyl- (9CI)	16.50	100.	J
9.	- -	UNKNOWN PHTHALATE	18.19	1000.	BJ R
10.	4337-65-9	Hexanedioic acid, mono(2-eth	23.09	100.	BJ R
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12.					
13.					
14.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW835

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 34. (g/mL) G Lab File ID: C2323

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 18. dec. 0. Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/ 4/89

GPC Cleanup: (Y/N) N pH: 7.1 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360.	U
111-44-4	bis(2-Chloroethyl)ether	360.	U
95-57-8	2-Chlorophenol	360.	U
541-73-1	1,3-Dichlorobenzene	360.	U
106-46-7	1,4-Dichlorobenzene	360.	U
100-51-6	Benzyl alcohol	360.	U
95-50-1	1,2-Dichlorobenzene	360.	U
95-48-7	2-Methylphenol	360.	U
108-60-1	bis(2-Chloroisopropyl)ether	360.	U
106-44-5	4-Methylphenol	360.	U
621-64-7	N-Nitroso-di-n-propylamine	360.	U
67-72-1	Hexachloroethane	360.	U
98-95-3	Nitrobenzene	360.	U J
78-59-1	Isophorone	360.	U
88-75-5	2-Nitrophenol	360.	U
105-67-9	2,4-Dimethylphenol	360.	U
65-85-0	Benzoic acid	1800.	U
111-91-1	bis(2-Chloroethoxy)methane	360.	U
120-83-2	2,4-Dichlorophenol	360.	U
120-82-1	1,2,4-Trichlorobenzene	360.	U J
91-20-3	Naphthalene	360.	U
106-47-8	4-Chloroaniline	360.	U J
87-68-3	Hexachlorobutadiene	360.	U
59-50-7	4-Chloro-3-methylphenol	360.	U
91-57-6	2-Methylnaphthalene	360.	U
77-47-4	Hexachlorocyclopentadiene	360.	U
88-06-2	2,4,6-Trichlorophenol	360.	U
95-95-4	2,4,5-Trichlorophenol	1800.	U
91-58-7	2-Chloronaphthalene	360.	U
88-74-4	2-Nitroaniline	1800.	U
131-11-3	Dimethylphthalate	360.	U
208-96-8	Acenaphthylene	360.	U
606-20-2	2,6-Dinitrotoluene	360.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW835

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 34. (g/mL) G Lab File ID: C2323

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 18. dec. 0. Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/ 4/89

GPC Cleanup: (Y/N) N pH: 7.1 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1800.	UJ
83-32-9	Acenaphthene	360.	U
51-28-5	2,4-Dinitrophenol	1800.	U
100-02-7	4-Nitrophenol	1800.	UJ
132-64-9	Dibenzofuran	360.	U
121-14-2	2,4-Dinitrotoluene	360.	U
84-66-2	Diethylphthalate	360.	U
7005-72-3	4-Chlorophenyl-phenylether	360.	U
86-73-7	Fluorene	360.	U
100-01-6	4-Nitroaniline	1800.	UJ
534-52-1	4,6-Dinitro-2-methylphenol	1800.	U
86-30-6	N-Nitrosodiphenylamine (1)	360.	U
101-55-3	4-Bromophenyl-phenylether	360.	U
118-74-1	Hexachlorobenzene	360.	UJ
87-86-5	Pentachlorophenol	1800.	U
85-01-8	Phenanthrene	360.	U
120-12-7	Anthracene	360.	U
84-74-2	Di-n-butylphthalate	~~360~~	~~U~~
206-44-0	Fluoranthene	360.	U
129-00-0	Pyrene	360.	U
85-68-7	Butylbenzylphthalate	360.	U
91-94-1	3,3'-Dichlorobenzidine	720.	U
56-55-3	Benzo(a)anthracene	360.	U
218-01-9	Chrysene	360.	U
117-81-7	bis(2-Ethylhexyl)phthalate	360.	U
117-84-0	Di-n-octylphthalate	360.	U
205-99-2	Benzo(b)fluoranthene	360.	U
207-08-9	Benzo(k)fluoranthene	360.	U
50-32-8	Benzo(a)pyrene	360.	U
193-39-5	Indeno(1,2,3-cd)pyrene	360.	U
53-70-3	Dibenz(a,h)anthracene	360.	U
191-24-2	Benzo(g,h,i)perylene	360.	U

(1) - Cannot be separated from diphenylamine

1F

EPA SAMPLE NO.

BW835

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 34. (g/mL) G Lab File ID: C2323

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 18. dec. 0. Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/ 4/89

GPC Cleanup: (Y/N) N pH: 7.1 Dilution Factor: 1.00

Number TICs found: 13 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	4127-47-3	Cyclopropane, 1,1,2,2-tetram	1.67	5000.	BJR
2.	- -	UNKNOWN Condensation product	1.81	200.	BJR A
3.	- -	UNKNOWN Condensation product	2.27	9000.	BJR A
4.	- -	UNKNOWN Condensation product	2.71	100.	JR A
5.	- -	UNKNOWN Condensation product	3.92	2000.	BJR A
6.	- -	UNKNOWN Compound	6.33	600.	J
7.	- -	UNKNOWN Condensation product	6.53	500.	JR A
8.	- -	UNKNOWN Compound	7.35	100.	J
9.	74217-34-3	Propanoic acid, 2-methyl-, 3	12.35	200.	J
10.	- -	UNKNOWN Compound	15.22	200.	J
11.	- -	UNKNOWN PHTHALATE	18.18	1000.	BJ
12.	- -	UNKNOWN HYDROCARBON	19.32	300.	J
13.	4337-65-9	Hexanedioic acid, mono(2-eth	23.10	200.	BJ
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16.					
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW852

Contract: 68-W8-0046

Lab Name: ICM

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) WATER Lab Sample ID:

Sample wt/vol: 1000. (g/mL) ML Lab File ID: C2310

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec.100. dec. 0. Date Extracted: 12/ 2/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 1/ 3/89

GPC Cleanup: (Y/N) N pH: 5.8 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10.	U
111-44-4	bis(2-Chloroethyl)ether	10.	U
95-57-8	2-Chlorophenol	10.	U
541-73-1	1,3-Dichlorobenzene	10.	U
106-46-7	1,4-Dichlorobenzene	10.	U
100-51-6	Benzyl alcohol	10.	U
95-50-1	1,2-Dichlorobenzene	10.	U
95-48-7	2-Methylphenol	10.	U
108-60-1	bis(2-Chloroisopropyl)ether	10.	U
106-44-5	4-Methylphenol	10.	U
621-64-7	N-Nitroso-di-n-propylamine	10.	U
67-72-1	Hexachloroethane	10.	U
98-95-3	Nitrobenzene	10.	U
78-59-1	Isophorone	10.	U
88-75-5	2-Nitrophenol	10.	U
105-67-9	2,4-Dimethylphenol	10.	U
65-85-0	Benzoic acid	50.	U
111-91-1	bis(2-Chloroethoxy)methane	10.	U
120-83-2	2,4-Dichlorophenol	10.	U
120-82-1	1,2,4-Trichlorobenzene	10.	U
91-20-3	Naphthalene	10.	U
106-47-8	4-Chloroaniline	10.	U
87-68-3	Hexachlorobutadiene	10.	U
59-50-7	4-Chloro-3-methylphenol	10.	U
91-57-6	2-Methylnaphthalene	10.	U
77-47-4	Hexachlorocyclopentadiene	10.	U
88-06-2	2,4,6-Trichlorophenol	10.	U
95-95-4	2,4,5-Trichlorophenol	50.	U
91-58-7	2-Chloronaphthalene	10.	U
88-74-4	2-Nitroaniline	50.	U
131-11-3	Dimethylphthalate	10.	U
208-96-8	Acenaphthylene	10.	U
606-20-2	2,6-Dinitrotoluene	10.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW852

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) WATER Lab Sample ID:

Sample wt/vol: 1000. (g/mL) ML Lab File ID: C2310

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec.100. dec. 0. Date Extracted: 12/ 2/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 1/ 3/89

GPC Cleanup: (Y/N) N pH: 5.8 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50.	U
83-32-9	Acenaphthene	10.	U
51-28-5	2,4-Dinitrophenol	50.	U
100-02-7	4-Nitrophenol	50.	U
132-64-9	Dibenzofuran	10.	U
121-14-2	2,4-Dinitrotoluene	10.	U
84-66-2	Diethylphthalate	10.	U
7005-72-3	4-Chlorophenyl-phenylether	10.	U
86-73-7	Fluorene	10.	U
100-01-6	4-Nitroaniline	50.	U
534-52-1	4,6-Dinitro-2-methylphenol	50.	U
86-30-6	N-Nitrosodiphenylamine (1)	10.	U
101-55-3	4-Bromophenyl-phenylether	10.	U
118-74-1	Hexachlorobenzene	10.	U
87-86-5	Pentachlorophenol	50.	U
85-01-8	Phenanthrene	10.	U
120-12-7	Anthracene	10.	U
84-74-2	Di-n-butylphthalate	10.	U
206-44-0	Fluoranthene	10.	U
129-00-0	Pyrene	10.	U
85-68-7	Butylbenzylphthalate	10.	U
91-94-1	3,3'-Dichlorobenzidine	20.	U
56-55-3	Benzo(a)anthracene	10.	U
218-01-9	Chrysene	10.	U
117-81-7	bis(2-Ethylhexyl)phthalate	10.	U
117-84-0	Di-n-octylphthalate	10.	U
205-99-2	Benzo(b)fluoranthene	10.	U
207-08-9	Benzo(k)fluoranthene	10.	U
50-32-8	Benzo(a)pyrene	10.	U
193-39-5	Indeno(1,2,3-cd)pyrene	10.	U
53-70-3	Dibenz(a,h)anthracene	10.	U
191-24-2	Benzo(g,h,i)perylene	10.	U

(1) - Cannot be separated from diphenylamine

1B

EPA SAMPLE NO.

BW851

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ICM Contract: 68-W8-0048

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) WATER Lab Sample ID:

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 22810

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec.100. dec. 0. Date Extracted: 12/ 2/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 1/ 3/89

GPC Cleanup: (Y/N) N pH: 5.8 Dilution Factor: 1.00

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN Compound	20.28	10.	J
2.	1569-02-4	2-Propanol, 1-ethoxy-	6.41	10.	BJ
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW853

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) WATER Lab Sample ID:

Sample wt/vol: 1000. (g/mL) ML Lab File ID: C2211

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec.100. dec. 0. Date Extracted: 12/ 2/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 1/ 3/89

GPC Cleanup: (Y/N) N pH: 6.4 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10.	U
111-44-4	bis(2-Chloroethyl)ether	10.	U
95-57-8	2-Chlorophenol	10.	U
541-73-1	1,3-Dichlorobenzene	10.	U
106-46-7	1,4-Dichlorobenzene	10.	U
100-51-6	Benzyl alcohol	10.	U
95-50-1	1,2-Dichlorobenzene	10.	U
95-48-7	2-Methylphenol	10.	U
108-60-1	bis(2-Chloroisopropyl)ether	10.	U
106-44-5	4-Methylphenol	10.	U
621-64-7	N-Nitroso-di-n-propylamine	10.	U
67-72-1	Hexachloroethane	10.	U
98-95-3	Nitrobenzene	10.	U
78-59-1	Isophorone	10.	U
88-75-5	2-Nitrophenol	10.	U
105-67-9	2,4-Dimethylphenol	10.	U
65-85-0	Benzoic acid	50.	U
111-91-1	bis(2-Chloroethoxy)methane	10.	U
120-83-2	2,4-Dichlorophenol	10.	U
120-82-1	1,2,4-Trichlorobenzene	10.	U
91-20-3	Naphthalene	10.	U
106-47-8	4-Chloroaniline	10.	U
87-68-3	Hexachlorobutadiene	10.	U
59-50-7	4-Chloro-3-methylphenol	10.	U
91-57-6	2-Methylnaphthalene	10.	U
77-47-4	Hexachlorocyclopentadiene	10.	U
88-06-2	2,4,6-Trichlorophenol	50.	U
95-95-4	2,4,5-Trichlorophenol	10.	U
91-58-7	2-Chloronaphthalene	50.	U
88-74-4	2-Nitroaniline	10.	U
131-11-3	Dimethylphthalate	10.	U
208-96-8	Acenaphthylene	10.	U
606-20-2	2,6-Dinitrotoluene	10.	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW853

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) WATER Lab Sample ID:

Sample wt/vol: 1000. (g/mL) ML Lab File ID: C2311

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec.100. dec. 0. Date Extracted: 12/ 2/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 1/ 3/89

GPC Cleanup: (Y/N) N pH: 6.4 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50.	U
83-32-9	Acenaphthene	10.	U
51-28-5	2,4-Dinitrophenol	50.	U
100-02-7	4-Nitrophenol	50.	U
132-64-9	Dibenzofuran	10.	U
121-14-2	2,4-Dinitrotoluene	10.	U
84-66-2	Diethylphthalate	10.	U
7005-72-3	4-Chlorophenyl-phenylether	10.	U
86-73-7	Fluorene	10.	U
100-01-6	4-Nitroaniline	50.	U
534-52-1	4,6-Dinitro-2-methylphenol	50.	U
86-30-6	N-Nitrosodiphenylamine (1)	10.	U
101-55-3	4-Bromophenyl-phenylether	10.	U
118-74-1	Hexachlorobenzene	10.	U
87-86-5	Pentachlorophenol	50.	U
85-01-8	Phenanthrene	10.	U
120-12-7	Anthracene	10.	U
84-74-2	Di-n-butylphthalate	10.	U
206-44-0	Fluoranthene	10.	U
129-00-0	Pyrene	10.	U
85-68-7	Butylbenzylphthalate	10.	U
91-94-1	3,3'-Dichlorobenzidine	20.	U
56-55-3	Benzo(a)anthracene	10.	U
218-01-9	Chrysene	10.	U
117-81-7	bis(2-Ethylhexyl)phthalate	10.	U
117-84-0	Di-n-octylphthalate	10.	U
205-99-2	Benzo(b)fluoranthene	10.	U
207-08-9	Benzo(k)fluoranthene	10.	U
50-32-8	Benzo(a)pyrene	10.	U
193-39-5	Indeno(1,2,3-cd)pyrene	10.	U
53-70-3	Dibenz(a,h)anthracene	10.	U
191-24-2	Benzo(g,h,i)perylene	10.	U

(1) - Cannot be separated from diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BW853

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) WATER Lab Sample ID:

Sample wt/vol: 1000. (g/mL) ML Lab File ID: C2311

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec.100. dec. 0. Date Extracted: 12/ 2/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 1/ 3/89

GPC Cleanup: (Y/N) N pH: 6.4 Dilution Factor: 1.00

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	1569-02-4	2-Propanol, 1-ethoxy- (8CI,9C	6.41	10.	BJ
2.					
3.					
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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW831

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 30. (g/mL) G Lab File ID: D0720

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 8. dec. 0. Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/15/88

GPC Cleanup: (Y/N) N pH: 6.8 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	8.6	U
319-85-7	beta-BHC	8.6	U
319-86-8	delta-BHC	8.6	U
58-89-9	gamma-BHC (Lindane)	8.6	U
76-44-8	Heptachlor	8.6	U
309-00-2	Aldrin	8.6	U
1024-57-3	Heptachlor epoxide	8.6	U
959-98-8	Endosulfan I	8.6	U
60-57-1	Dieldrin	17.	U
72-55-9	4,4'-DDE	17.	U
72-20-8	Endrin	17.	U
33213-65-9	Endosulfan II	17.	U
72-54-8	4,4'-DDD	17.	U
1031-07-8	Endosulfan sulfate	17.	U
50-29-3	4,4'-DDT	17.	U
72-43-5	Methoxychlor	86.	U
53494-70-5	Endrin ketone	17.	U
5103-71-9	alpha-Chlordane	86.	U
5103-74-2	gamma-Chlordane	86.	U
8001-35-2	Toxaphene	170.	U
12674-11-2	Aroclor-1016	86.	U
11104-28-2	Aroclor-1221	86.	U
11141-16-5	Aroclor-1232	86.	U
53469-21-9	Aroclor-1242	86.	U
12672-29-6	Aroclor-1248	86.	U
11097-69-1	Aroclor-1254	170.	U
11096-82-5	Aroclor-1260	170.	U

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW832

ame: ICM Contract: 68-W8-0045

ode: ICM Case No.: 10959 SAS No.: SDG No.: BW831

.: (soil/water) SOIL Lab Sample ID:

e wt/vol: 30. (g/mL) G Lab File ID: D0716

: (low/med) LOW Date Received: 12/ 1/88

ture: not dec. 9. dec. 0. Date Extracted: 12/ 7/88

action: (SepF/Cont/Sonc) SONC Date Analyzed: 12/15/88

leanup: (Y/N) N pH: 6.4 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	8.6	U
319-85-7	beta-BHC	8.6	U
319-86-8	delta-BHC	8.6	U
58-89-9	gamma-BHC (Lindane)	8.6	U
76-44-8	Heptachlor	8.6	U
309-00-2	Aldrin	8.6	U
1024-57-3	Heptachlor epoxide	8.6	U
959-98-8	Endosulfan I	8.6	U
60-57-1	Dieldrin	17.	U
72-55-9	4,4'-DDE	17.	U
72-20-8	Endrin	17.	U
33213-65-9	Endosulfan II	17.	U
72-54-8	4,4'-DDD	17.	U
1031-07-8	Endosulfan sulfate	17.	U
50-29-3	4,4'-DDT	17.	U
72-43-5	Methoxychlor	86.	U
53494-70-5	Endrin ketone	17.	U
5103-71-9	alpha-Chlordane	86.	U
5103-74-2	gamma-Chlordane	86.	U
8001-35-2	Toxaphene	170.	U
12674-11-2	Aroclor-1016	86.	U
11104-28-2	Aroclor-1221	86.	U
11141-16-5	Aroclor-1232	86.	U
53469-21-9	Aroclor-1242	86.	U
12672-29-6	Aroclor-1248	86.	U
11097-69-1	Aroclor-1254	170.	U
11096-82-5	Aroclor-1260	170.	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW833

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 31. (g/mL) G Lab File ID: D0713

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 24. dec. 14. Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/14/88

GPC Cleanup: (Y/N) N pH: 7.7 Dilution Factor: 5.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	51.	U
319-85-7	beta-BHC	51.	U
319-86-8	delta-BHC	51.	U
58-89-9	gamma-BHC (Lindane)	51.	U
76-44-8	Heptachlor	51.	U
309-00-2	Aldrin	51.	U
1024-57-3	Heptachlor epoxide	51.	U
959-98-8	Endosulfan I	51.	U
60-57-1	Dieldrin	100.	U
72-55-9	4,4'-DDE	100.	U
72-20-8	Endrin	100.	U
33213-65-9	Endosulfan II	100.	U
72-54-8	4,4'-DDD	100.	U
1031-07-8	Endosulfan sulfate	100.	U
50-29-3	4,4'-DDT	100.	U
72-43-5	Methoxychlor	510.	U
53494-70-5	Endrin ketone	100.	U
5103-71-9	alpha-Chlordane	510.	U
5103-74-2	gamma-Chlordane	510.	U
8001-35-2	Toxaphene	1000.	U
12674-11-2	Aroclor-1016	510.	U
11104-28-2	Aroclor-1221	510.	U
11141-16-5	Aroclor-1232	510.	U
53469-21-9	Aroclor-1242	510.	U
12672-29-6	Aroclor-1248	510.	U
11097-69-1	Aroclor-1254	1000.	U
11096-82-5	Aroclor-1260	1000.	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW834

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 31. (g/mL) G Lab File ID: D0719

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 9. dec. . Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/15/88

GPC Cleanup: (Y/N) N pH: 7.3 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	8.6	U
319-85-7	beta-BHC	8.6	U
319-86-8	delta-BHC	8.6	U
58-89-9	gamma-BHC (Lindane)	8.6	U
76-44-8	Heptachlor	8.6	U
309-00-2	Aldrin	8.6	U
1024-57-3	Heptachlor epoxide	8.6	U
959-98-8	Endosulfan I	8.6	U
60-57-1	Dieldrin	17.	U
72-55-9	4,4'-DDE	17.	U
72-20-8	Endrin	17.	U
33213-65-9	Endosulfan II	17.	U
72-54-8	4,4'-DDD	17.	U
1031-07-8	Endosulfan sulfate	17.	U
50-29-3	4,4'-DDT	17.	U
72-43-5	Methoxychlor	86.	U
53494-70-5	Endrin ketone	17.	U
5103-71-9	alpha-Chlordane	86.	U
5103-74-2	gamma-Chlordane	86.	U
8001-35-2	Toxaphene	170.	U
12674-11-2	Aroclor-1016	86.	U
11104-28-2	Aroclor-1221	86.	U
11141-16-5	Aroclor-1232	86.	U
53469-21-9	Aroclor-1242	86.	U
12672-29-6	Aroclor-1248	86.	U
11097-69-1	Aroclor-1254	170.	U
11096-82-5	Aroclor-1260	170.	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BW835

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) SOIL Lab Sample ID:

Sample wt/vol: 34. (g/mL) G Lab File ID: D0718

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec. 18. dec. 0. Date Extracted: 12/ 7/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/15/88

GPC Cleanup: (Y/N) N pH: 7.1 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	8.6	U
319-85-7	beta-BHC	8.6	U
319-86-8	delta-BHC	8.6	U
58-89-9	gamma-BHC (Lindane)	8.6	U
76-44-8	Heptachlor	8.6	U
309-00-2	Aldrin	8.6	U
1024-57-3	Heptachlor epoxide	8.6	U
959-98-8	Endosulfan I	8.6	U
60-57-1	Dieldrin	17.	U
72-55-9	4,4'-DDE	17.	U
72-20-8	Endrin	17.	U
33213-65-9	Endosulfan II	17.	U
72-54-8	4,4'-DDD	17.	U
1031-07-8	Endosulfan sulfate	17.	U
50-29-3	4,4'-DDT	17.	U
72-43-5	Methoxychlor	86.	U
53494-70-5	Endrin ketone	17.	U
5103-71-9	alpha-Chlordane	86.	U
5103-74-2	gamma-Chlordane	86.	U
8001-35-2	Toxaphene	170.	U
12674-11-2	Aroclor-1016	86.	U
11104-28-2	Aroclor-1221	86.	U
11141-16-5	Aroclor-1232	86.	U
53469-21-9	Aroclor-1242	86.	U
12672-29-6	Aroclor-1248	86.	U
11097-69-1	Aroclor-1254	170.	U
11096-82-5	Aroclor-1260	170.	U

1C

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Bw851

Lab Name: ICM Contract: 68-W8-0046

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: Bw83.

Matrix: (soil/water) WATER Lab Sample ID:

Sample wt/vol: 1000. (g/mL)ML Lab File ID: D0693

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec.100. dec. 0. Date Extracted: 12/ 1/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/13/88

GPC Cleanup: (Y/N) N pH: 5.8 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	.050	U
319-85-7	beta-BHC	.050	U
319-86-8	delta-BHC	.050	U
58-89-9	gamma-BHC (Lindane)	.050	U
76-44-8	Heptachlor	.050	U
309-00-2	Aldrin	.050	U
1024-57-3	Heptachlor epoxide	.050	U
959-98-8	Endosulfan I	.050	U
60-57-1	Dieldrin	.10	U
72-55-9	4,4'-DDE	.10	U
72-20-8	Endrin	.10	U
33213-65-9	Endosulfan II	.10	U
72-54-8	4,4'-DDD	.10	U
1031-07-8	Endosulfan sulfate	.10	U
50-29-3	4,4'-DDT	.10	U
72-43-5	Methoxychlor	.50	U
53494-70-5	Endrin ketone	.10	U
5103-71-9	alpha-Chlordane	.50	U
5103-74-2	gamma-Chlordane	.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	.50	U
11104-28-2	Aroclor-1221	.50	U
11141-16-5	Aroclor-1232	.50	U
53469-21-9	Aroclor-1242	.50	U
12672-29-6	Aroclor-1248	.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

BW853

Contract: 68-W8-0046

Lab Name: ICM

Lab Code: ICM Case No.: 10959 SAS No.: SDG No.: BW831

Matrix: (soil/water) WATER Lab Sample ID:

Sample wt/vol: 1000. (g/mL)ML Lab File ID: D0694

Level: (low/med) LOW Date Received: 12/ 1/88

% Moisture: not dec.100. dec. 0. Date Extracted: 12/ 2/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/13/88

GPC Cleanup: (Y/N) N pH: 6.4 Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L 0

CAS NO.	COMPOUND		
319-84-6	alpha-BHC	.050	U
319-85-7	beta-BHC	.050	U
319-86-8	delta-BHC	.050	U
58-89-9	gamma-BHC (Lindane)	.050	U
76-44-8	Heptachlor	.050	U
309-00-2	Aldrin	.050	U
1024-57-3	Heptachlor epoxide	.050	U
959-98-8	Endosulfan I	.10	U
60-57-1	Dieldrin	.10	U
72-55-9	4,4'-DDE	.10	U
72-20-8	Endrin	.10	U
33213-65-9	Endosulfan II	.10	U
72-54-8	4,4'-DDD	.10	U
1031-07-8	Endosulfan sulfate	.10	U
50-29-3	4,4'-DDT	.50	U
72-43-5	Methoxychlor	.10	U
53494-70-5	Endrin ketone	.50	U
5103-71-9	alpha-Chlordane	.50	U
5103-74-2	gamma-Chlordane	1.0	U
8001-35-2	Toxaphene	.50	U
12674-11-2	Aroclor-1016	.50	U
11104-28-2	Aroclor-1221	.50	U
11141-16-5	Aroclor-1232	.50	U
53469-21-9	Aroclor-1242	.50	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

REFERENCE NO. 4

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE 1 INVESTIGATION
NTU Circuits, Inc.
Site No. 152086
Town of Babylon, Suffolk County
Final - June 1987

New York State
Department of
Environmental Conservation

50 Wolf Road, Albany, New York 12233
Henry G. Williams, Commissioner

Division of Solid and Hazardous Waste
Norman H. Nosenchuck, P.E., Director

Prepared by:

EA SCIENCE AND TECHNOLOGY
A Division of EA Engineering, Science, and Technology, Inc.

EA REPORT DEC63A

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES IN THE STATE OF NEW YORK PHASE I INVESTIGATIONS

NTU CIRCUITS, INC.
TOWN OF BABYLON, SUFFOLK COUNTY
NEW YORK I.D. NO. 152086

Prepared for

Division of Solid and Hazardous Waste
New York State Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-0001

Prepared by

EA Science and Technology
R.D. 2, Goshen Turnpike
Middletown, New York 10940

A Division of EA Engineering, Science, and Technology, Inc.

June 1987

CONTENTS

1. EXECUTIVE SUMMARY

The NTU Circuits, Inc. site (New York I.D. No. 152086 and EPA I.D. No. "New") is the former business location of NTU Circuits, where they manufactured printed circuit boards for electric applications. NTU leased the eastern portion of a building located at 60 Dale Street, Town of Babylon, Suffolk County, New York (Figures 1-1 and 1-2 and Photos 1 through 7) between 1978 and 1983. Spectrum Finishing Corp. is the current owner of the building, having purchased the property from Mr. James Gray in 1981. The site is located in an industrial park.

Six leach pools were present at the site during NTU's operations. NTU Circuits was repeatedly notified by the Suffolk County Department of Health Services (SCDHS) that the contents of the leaching pools were in violation of ground-water effluent standards and NTU's SPDES permit. Samples collected from the pools by SCDHS from 1979 until 1982 contained elevated levels of copper, cadmium, lead, silver, iron, flouride, and total solids. Analyses also indicated that the pH of the leachate was often outside the NYS Ground-Water Standards. Site visits by SCDHS staff produced evidence that foamy, bluish liquids were being discharged into the SPDES pool. On two occasions, the pool SD-3 was observed to be overflowing onto the ground and/or into adjacent storm drains.

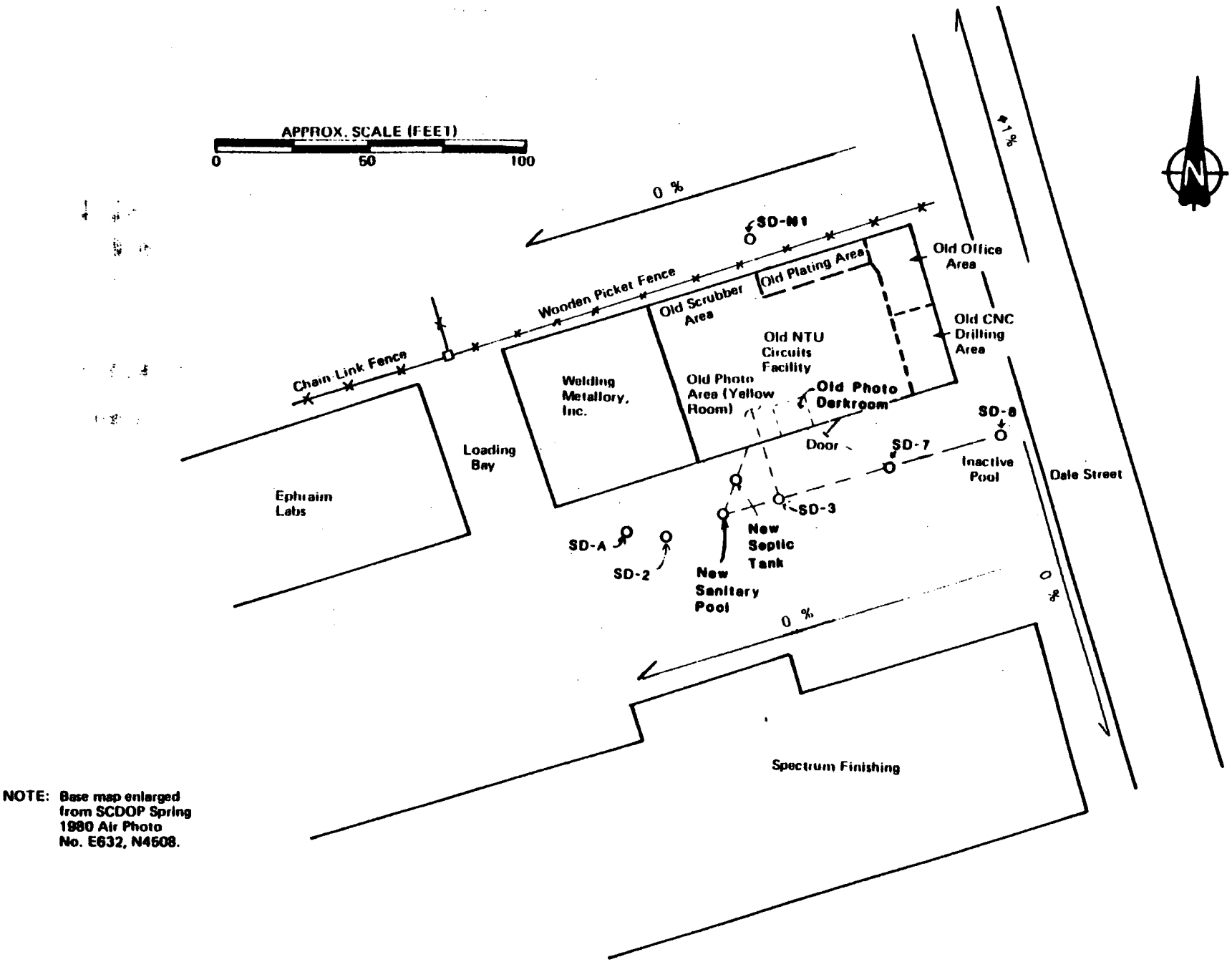
In 1982, a case was filed against NTU Circuits, Inc. by the New York State Attorney General. The settlement, which took place on 30 April 1982, resulted in NTU having to clean up all six of the existing pools at the site. The company moved to a new site in September of 1983. Approximately two months later, the clean-up plan was implemented based on the Stipulation of

Discontinuence written by the Attorney General. The contaminated liquid was removed from the leach pools and taken to NTU's new building where it was treated in their wastewater treatment system. Three pools (SP-A, SD-2, and SD-3) were then lime slurried, the pipes were concreted closed, and each pool backfilled and paved over. The other pools (SD-7, SD-8, and SD-N1) were allowed to remain open after 1-2 ft of the bottom material was removed and replaced with clean sand.

The cleanup was performed in the presence of SCDHS officials, who affirmed that the leaching pools were cleaned properly. During EA's site inspection on 22 January 1986, it was found that the closed, paved over SD-3 pool had since been reopened. The tampering with this closed pool reportedly occurred after cleaning and closure by NTU, and did not involve NTU.

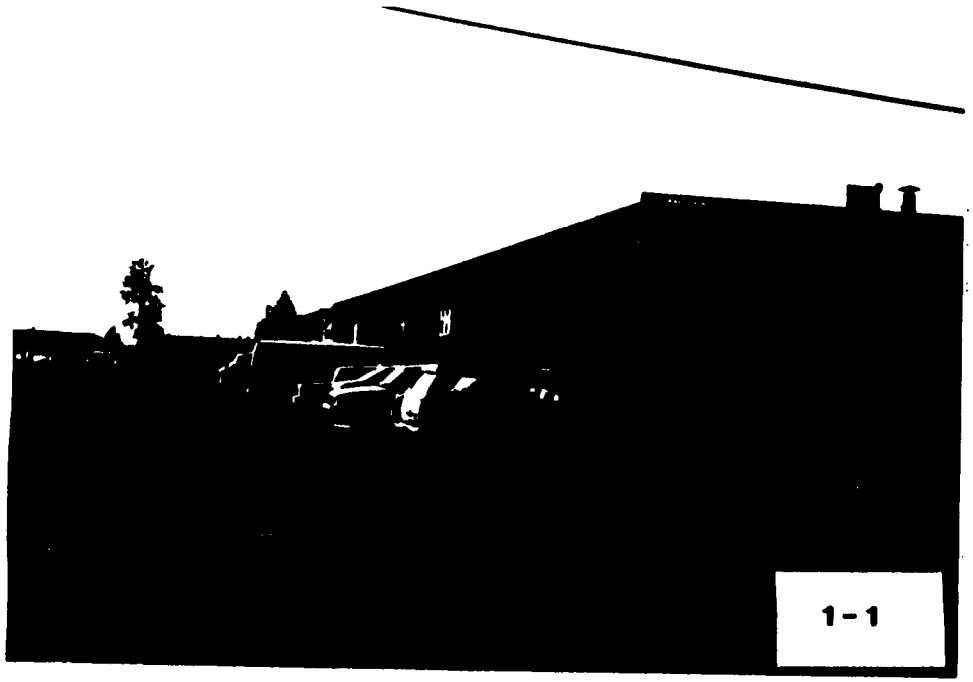
The available data are not adequate to prepare a final score. Although there is analytical data for samples of the waste, ground-water quality data are lacking. The preliminary HRS scores for this site are as follows: Migration Score (S_M) = 31.03 (Ground Water Score (S_{gw}) = 53.69, Surface Water Score (S_{sw}) = 0, Air Score (S_a) = 0); Fire and Explosion Score S_{FE} = 0; Direct Contact Score (S_{DC}) = 0.

In order to confirm a release of contaminants from the site to the ground water, a Phase II investigation is recommended. The proposed Phase II study would include the installation of four test boring/monitoring wells, and the collection and analysis of ground-water samples. The estimated cost to complete the Phase II investigation is $50,700.



NOTE: Base map enlarged from SCDOP Spring 1980 Air Photo No. E632, N4608.

Figure 1-2. Site sketch. NTU Circuits, Inc., 22 January 1986.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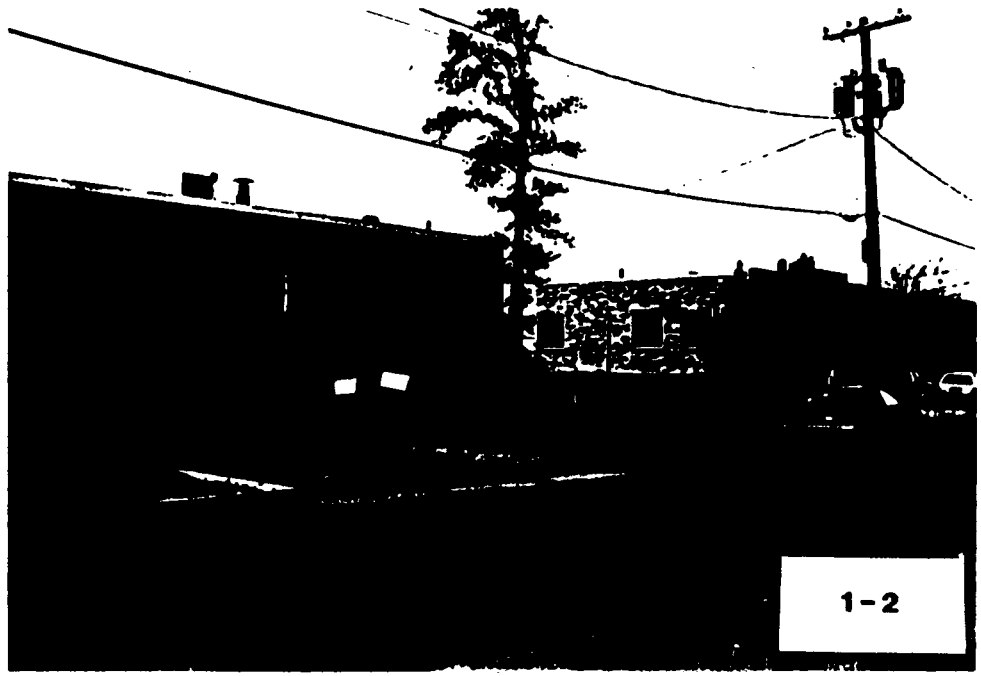
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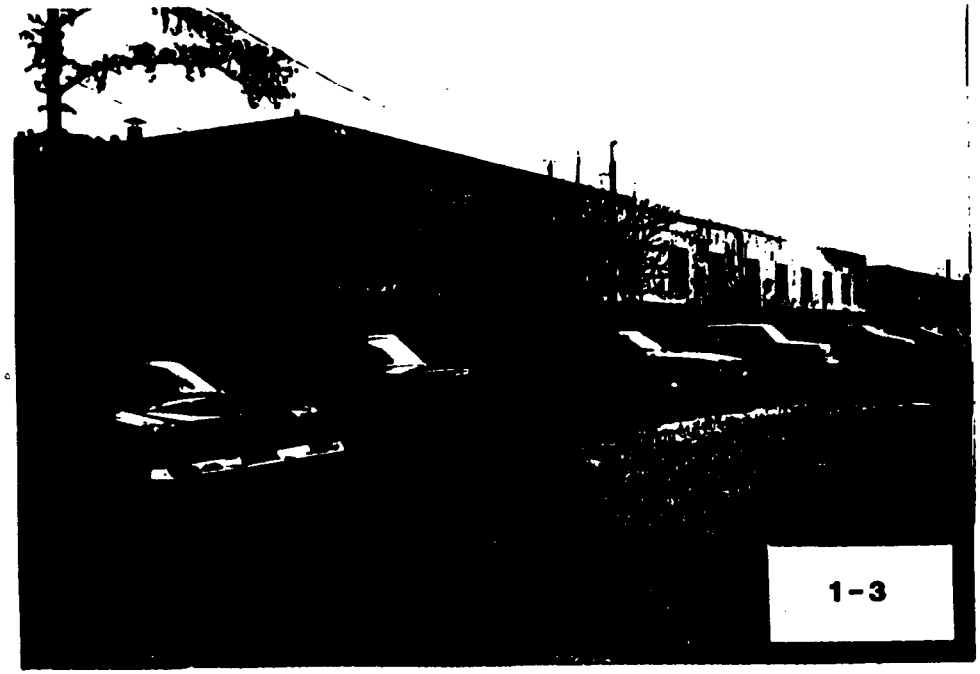
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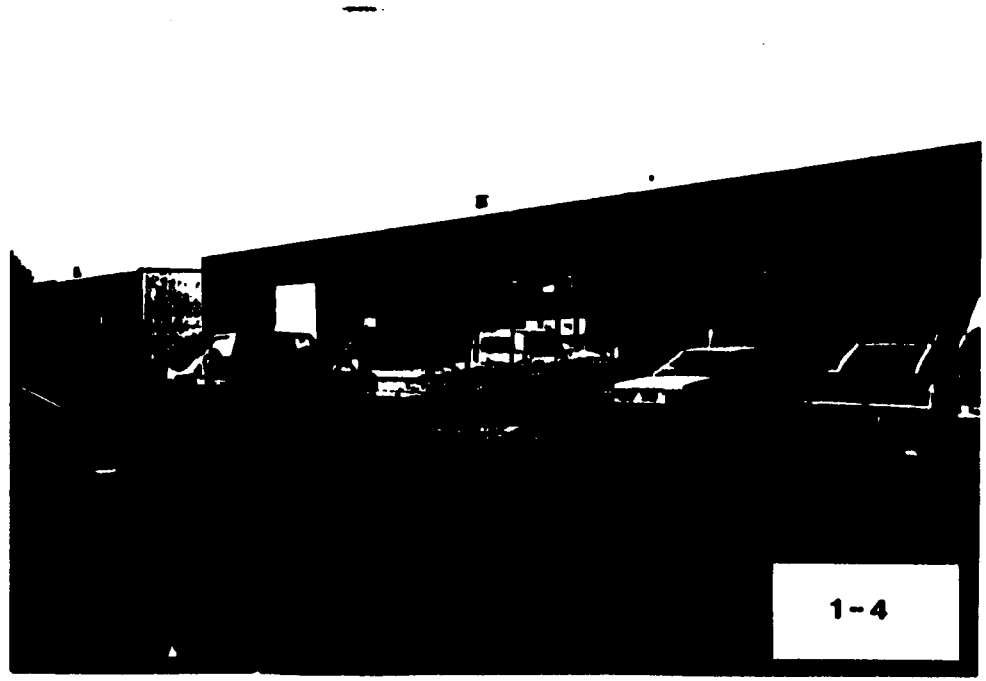

1-4

1-5

1-6

1-7

PHOTO LOG - NTU CIRCUITS

Photo	Description
1-1 and 1-2	A view approximately west across the south and east (Photo 1-2) sides of the former NTU building.
1-3	A view approximately southwest across the north side of the former NTU building.
1-4 thru 1-6	A panoramic view northwest to north of the south side of the former NTU building. Pool SD-3 is located between the white pickup truck and the dumpster on Photo 1-4. Pool SD-7 is located near the right rear tire of the van on Photo 1-5. Pool SD-8 is located beneath the rear liscense plate of the station wagon on Photo 1-6.
1-7	Close up of the re-exposed grate which covers Pool SD-3.

2. PURPOSE

The NTU Circuits, Inc. site was listed in the New York State Registry of Inactive Hazardous Wastes Sites because hazardous wastes were found in onsite leachpools.

The goal of the Phase I investigation of this site was to: (1) obtain available records on the site history from state, federal, county, and local agencies; (2) obtain information on site topography, geology, local surface water and ground-water use, previous contamination assessments, and local demographics; (3) interview site owners, operators, and other groups or individuals knowledgeable of site operations; (4) conduct a site inspection to observe current conditions; and (5) prepare a Phase I report. The Phase I report includes a preliminary Hazard Ranking Score (HRS), an assessment of the available information, and a recommended work plan for Phase II studies.

3. SCOPE OF WORK

The Phase I investigation of the NTU Circuits, Inc. site involved a site inspection by EA Science and Technology, as well as record searches and interviews. The following agencies or individuals were contacted:

Contact	Information Received
Mr. Wayne DeChirico Quality Control Manager Spectrum Finishing Corp. 50 Dale Street Babylon, New York 11704 (516) 694-0306	Site history/interview
Mr. Richard Gregorski Marketing Manager NTU Circuits, Inc. 1480 North Clinton Avenue Bay Shore, New York 11706 (516) 666-7211	Site history/interview
Mr. Errol Kitt Assistant Project Engineer Fanning, Phillips, and Molner Consulting Engineers 80 Skyline Drive Plainview, New York 11803 (718) 767-3337	Site history/interview
Mr. Dave Obrig/Mr. Bob Seaforth Public Health Sanitarians Suffolk County Department of Health Services Bureau of Environmental Health 15 Horseblock Place Farmingville, New York 11738 (516) 451-4633	Site interview

Contact	Information Received
Mr. Anthony Candela, P.E. Senior Sanitary Engineer New York State Department of Environmental Conservation Division of Solid Waste SUNY Campus - Building 40 Stony Brook, New York 11794 (516) 751-7900	Site file
Mr. James H. Pim, P.E. Suffolk County Department of Health Services Hazardous Materials Management 15 Horseblock Place Farmingville, New York 11738 (516) 451-4634	Interview and site file
Mr. Steve Carey/Mr. Dennis Moran Suffolk County Department of Health Services Bureau of Water Resources 225 Rabro Drive East Hauppauge, New York 11788 (516) 348-2893	Ground-water use; public water supplies and ground-water monitoring information
Mr. Dan Fricke Suffolk County Cooperative Extension Association 264 Griffing Avenue Riverhead, New York 11901 (516) 727-7850	Ground-water and surface water use for irrigation
Mr. William Schickler/Mr. Robert Bowen Suffolk County Water Authority Sunrise Highway and Pond Road Oakdale, New York 11769 (516) 589-5200	Public water supply and distribution
Mr. Doug Pica New York State Department of Environmental Conservation Division of Water SUNY Campus - Building 40 Stony Brook, New York 11794 (516) 751-7900	Ground-water use for irrigation
Mr. Allan S. Connell District Conservationist U.S. Department of Agriculture Soil Conservation Survey 127 East Main Street Riverhead, New York 11901	Ground-water use for irrigation

Contact	Information Received
Mr. Gil Hanse Chief Fire Marshal Town of Babylon 200 E. Sunrise Highway Lindenhurst, New York 11757 (516) 957-3069	Information regarding the threat of fire and/or explosion at the site
Mr. Kevin Walter, P.E. New York State Department of Environmental Conservation Division of Hazardous Waste Enforcement 50 Wolf Road Albany, New York 12233-0001 (518) 457-4346	No site file
Mr. John Iannotti, P.E. New York State Department of Environmental Conservation Bureau of Remedial Action 50 Wolf Road Albany, New York 12233-0001 (518) 457-5637	No site file
Mr. Earl Barcomb, P.E. New York State Department of Environmental Conservation Bureau of Municipal Wastes Section of Landfill Operations Vatrano Road Albany, New York 12205 (518) 457-2051	No site file
Mr. Peter Skinner, P.E. New York State Attorney General's Office Room 221 Justice Building Albany, New York 12224 (518) 474-2432	No site file
Mr. Ron Tramontano/Mr. Charlie Hudson New York State Department of Health Bureau of Toxic Substances Assessment Nelson A. Rockefeller Empire State Plaza Corning Tower Building, Room 342 Albany, New York 12237 (518) 473-8427	No site file

Contact	Information Received
Mr. James Covey, P.E. New York State Department of Health Nelson A. Rockefeller Empire State Plaza Corning Tower Building Albany, New York 12237 (518) 473-4637	Community Water Supply Atlas
Mr. Rocky Paggione, Atty./ Mr. Louis A. Evans, Atty. New York State Department of Environmental Conservation Division of Environmental Enforcement 202 Mamaroneck Avenue White Plains, New York 10601-5381 (914) 761-6660	No site file
Mr. Marsden Chen, P.E. New York State Department of Environmental Conservation Bureau of Site Control 50 Wolf Road Albany, New York 12233-0001 (518) 457-0639	Site file
Mr. John W. Ozard Senior Wildlife Biologist New York State Department of Environmental Conservation Wildlife Resources Center Significant Habitat Unit Delmar, New York 12054 (518) 439-7486	Significant habitats
Mr. Perry Katz U.S. Environmental Protection Agency Region II Room 757 26 Federal Plaza New York, New York 10278 (212) 264-4595	No site file
Mr. Johnson District Superintendent Farmingdale Village Water Authortity 361 Main Street Farmingdale, New York 11735 (516) 249-6770	Water district information
Mr. John Ferrari Senior Water Plant Operator E. Farmingdale Water District (516) 249-4211	Water district information

Contact	Information Received
Mr. Charles Guthrie Regional Fisheries Manager New York State Department of Environmental Conservation SUNY Campus-Building 40 Stony Brook, New York 11794 (516) 751-7900	Surface water use for recreation

4. SITE ASSESSMENT - NTU CIRCUITS, INC.

4.1 SITE HISTORY

The NTU Circuits, Inc. site is the former business location of NTU Circuits, where they manufactured printed circuit boards for electronic applications (Appendix 1.1-1). The site is located at 60 Dale Street, Town of Babylon, Suffolk County, New York. Spectrum Finishing Corp. (Mr. William DeChirico, Vice President) is the current owner of the property, having purchased the 14-year-old building from Mr. James Gray in 1981 (Appendix 1.1-2). The building is separated into two sections, the eastern portion (4,000 ft^2) of which was leased and operated by NTU Circuits, Inc. for a 6-year period from 1978 through September 1983 (Appendixes 1.1-1 and 1.1-3). Mr. Wayne DeChirico, Quality Control Manager for Spectrum, indicated that the site was occupied by a candy distributor for a 6-month period from April 1984 until September 1984. During EA's site reconnaissance, it was observed that the portion of the building, which had been leased by NTU was now being leased by a pipe organ manufacturer who had been there approximately 1 year. The western portion of the building was and still is occupied by Welding Metallurgy, Inc. (Appendixes 1.1-2 and 1.1-3).

Mr. Richard Gregorski, Marketing Manager for NTU Circuits, indicated that NTU's operation consisted of an office; a drilling room in the east portion; plating and scrubbers along the north wall; a yellow room (photodeveloping/printing) in the west section; a photodeveloping darkroom in the south-central area; and shipping, programming, and machine drilling in the southeastern portion

(Appendix 1.1-3 and Figure 1-2). The operation employed 10-15 people on a 6-day work week, drilling, cleaning, and electroplating 100 panels a day. According to a study performed at NTU in 1981, combined processes at the plant at that time produced an average effluent volume of 6,205 gal per day (Appendix 1.1-4). Although, all plating solutions were reportedly drummed and removed from the site for disposal by a liscensed hauler, some of the rinsewater was discharged to storm drain/industrial leach pools under a SPDES permit (Appendixes 1.1-1 and 1.1-5).

There are seven leach pools (cesspools) and one septic tank now located around the old NTU facility located at Dale Avenue. One pool (SD-N1) is located north of the building and reportedly received only storm runoff (Appendixes 1.1-2 and 1.1-3). The remaining pools and septic tank are located south of the building (Figure 1-2):

SP-A was the old (now abandoned and backfilled) sanitary pool which received sanitary waste from both NTU and Welding Metallurgy, Inc., plus waste from NTU's "slop sink" (Appendix 1.1-5).

SD-2 received roof drainage and surface runoff (Appendix 1.1-3).

New sanitary pool and new septic tank shown on Figure 1-2 are the current sanitary waste disposal system which replaced SP-A (Appendix 1.1-3).

SD-3 was permitted (SPDES) and received NTU's industrial wastewater (Appendix 1.1-3).

SD-7 received rinsewater from NTU's photoprinting operation and for an unknown period of time apparently beginning in July 1981 was connected to and received waste from SD-3 (Appendixes 1.1-3 and 1.1-5).

SD-8 received roof drainage and surface water runoff and for an unknown period was interconnected with and received waste from SD-3 and SD-7 (Appendix 1.1-3).

NTU Circuits was repeatedly notified by the Suffolk County Department of Health Services (SCDHS) that the contents of its leaching pools were in violation of NYS Ground-Water Standards and NTU's SPDES permit (Appendix 1.1-6). During site visits to NTU between 1979 and 1981 to perform site inspections and/or sampling activities, SCDHS personnel made a variety of observations including: (1) overflow of blusih liquids from SD-3 into the surrounding area, (2) presence of bluish liquids in SP-A, (3) presence of foamy fluid in SD-3, and (4) flow of a bluish, foamy liquid via a subsurface PVC pipe from SD-3 to SD-7 (Appendixes 1.1-5, 1.1-7 through 1.1-9). One inspector also noted blue-green stains on the floor inside the NTU building and outside the wall (Appendix 1.1-5). Although Welding Metallurgy also discharged sanitary wastewater into pool SP-A, SCDHS did not consider the company to be a contributor to the industrial waste found in the cesspool. No chemicals or prints were found on the Welding Metallurgy premises during a SCDHS site visit (Appendix 1.1-5).

NTU was the subject of a court action by the New York State Attorney General which was settled on 30 April 1982 (Appendixes 1.1-3, 1.1-10, and 1.1-11). The settlement of the case resulted in NTU having to clean up all of the existing

pools. During September 1983, NTU moved from the Dale Street facility in West Babylon to a new facility at 1480 North Clinton Avenue in Bayshore, New York. The new facility is located in a sewered area and includes an automated EPA-approved waste treatment system (Appendix 1.1-1).

In complying with the Stipulation of Discontinuance (Appendix 1.1-11), NTU performed drainage pool cleanup activities during 29 November and 1-2 December 1983 at the old Dale Street facility which they had already vacated. The cleanup work was supervised and approved by SCDHS personnel. The work included (Appendix 1.1-3):

SD-2 and SD-3 Pools - liquid removed and transported by a certified hauler to NTU's new (Clinton Street) facility for treatment in their wastewater treatment system. The bottom of each pool was lime slurried, the pipes cemented closed, and each pool filled with clean sand and paved over.

SP-A Pool - Cleaned out, filled in with clean sand, and paved over.

SD-7, SD-8, and SD-N1 Pools - Liquid removed and treated as stated previously for SD-2 and SD-3. The 1-2 ft of bottom material was removed for disposal by a certified waste hauler, and replaced with 1-2 ft of clean sand. These 3 pools were allowed to remain in use.

This remedial work involved only the cleanup of contaminated leach pools, and did not involve any ground-water monitoring to investigate the potential

migration of contaminants from the site. SCDHS has noted that such a groundwater investigation should still be performed under Superfund (Appendix 1.1-12).

During EA's January 1986 site reconnaissance, it was noted that someone had tampered with the SD-3 pool which NTU had closed and paved over. The overpaving had been removed and the grating exposed, through which an approximately 5-gal jerry can was observed just beneath the grating. Although, the source of this tampering is unknown, it occurred after NTU cleaned and paved it over and did not invvolve NTU (Appendix 1.1-3).

4.2 SITE TOPOGRAPHY

The NTU Circuits, Inc. site is situated along the southern side of Long Island, approximately 5 mi inland of Great South Bay (Appendix 1.2-1). The site is largely flat; however, the regional slope is approximately 0-2 degrees to the south.

NTU Circuits site is located in an industrial park on the west side of Dale Street. The NTU facility was located in the eastern portion of a building at 60 Dale Street. The western portion of the building was and still is occupied by Welding Metallory, Inc. The old NTU building is bordered by Dale Street to the east, commercial establishments to the north and west, and Spectrum Finishing Corp. (who owns the site property) to the south. Welding Metallory, Inc. is the nearest commercial establishment. The nearest private residence is located at the intersection of Dale Street and Edison Avenue, approximately 500 ft southeast of the site. The nearest well is in the SCWA Gordon Avenue

well field located approximately 1 mi southeast of the site. The nearest surface water is Meguntatogue Creek, a perennial stream located approximately 9,500 ft south-southeast of the site. However, there is no viable overland route to this surface waterbody because several highways, recharge basins, and a railroad interrupt the pathway. Also, surface water in the vicinity of the site is collected in storm drainage pools for subsurface discharge to the ground.

4.3 SITE HYDROGEOLOGY

The site is directly underlain by Pleistocene Age glacial outwash deposits. This deposit is then in turn underlain by Cretaceous Age Matawan Group-Magothy Formation (undifferentiated), the Clay Member and Lloyd Sand Member of the Raritan Formation and finally by Precambrian Age gneiss and schist bedrock (Appendix 1.3-1). The Pleistocene deposits are estimated to be 75 ft in thickness (ground surface elevation and Appendix 1.3-1) and largely comprised of stratified sand and gravel. The Matawan Group-Magothy Formation (undifferentiated) is estimated to be 800 ft in thickness in the vicinity of the site (Appendixes 1.3-1 and 1.3-2). The upper surface of this deposit is irregular because of considerable erosion during the Tertiary and Pleistocene times. Therefore, accurate prediction of formation thickness between control points (boreholes) is difficult. The most detailed description of this formation is provided by Soren (Appendix 1.3-3) and is as follows: generally composed of "beds and lenses of light gray fine to coarse sand and silt, intercalated with thin to thick beds and lenses of light- to dark-gray clay, silt, and clayey/silty sand." Thin beds of lignite are commonly found in the clay and silt beds, while disseminated lignite and pyrite are common in the sand beds.

Gravelly coarse sand is commonly present in the basal portion of the Magothy Formation, along with abundant interstitial clay and silt and lenses of clay, silt, and clayey/silty sand. The clay and silt beds are often apparently discontinuous lenses and not possible to correlate over significant distances as indicated on the geologic logs (Appendix 1.3-4) for two nearby deep water supply wells: Well S-51457 (733-ft total borehole depth) located approximately 2 mi east of the site; and Well S-20042 (585-ft total borehole depth) located about 2 mi northwest of the site.

Based upon Jensen and Soren (Appendix 1.3-2) it is estimated that in the vicinity of the site the Clay Member of the Raritan Formation is 150 ft in thickness, and the Lloyd Sand is estimated to be 350 ft in thickness. The most detailed stratigraphy information is provided by Soren (Appendix 1.3-3) and summarized in the following sentences. The Clay Member of the Raritan Formation consists mostly of beds/lenses of light- to dark-gray clay, silt, and clayey/silty fine sand and occasional thin-to-thick sandy lenses of limited lateral extent. Thin beds and disseminated particles of lignite and pyrite are common in the clay portion of this unit. The Lloyd Sand Member of the Raritan Formation "consists mostly of beds and lenses of light- to medium-gray sand and gravelly sand, commonly containing small to large amounts of interstitial clay and silt, that are intercalated with beds and lenses of light- to dark-gray clay, silt, and clayey/silty sand."

Water pumped from aquifers underlying Suffolk County is the sole source of water for public supply, agriculture, and industry (Appendix 1.3-2). The upper glacial and Magothy aquifers act as a single hydrological unit. However, only the Magothy portion is reportedly still developed by wells for water supply

within 3 mi of the site. Therefore, both the upper glacial and Magothy aquifers are designated as the aquifer of concern. The Lloyd aquifer, though moderately permeable (165 gpd/ft^2 estimated horizontal permeability at Brookhaven National Laboratory about 30 mi east of the site), has not been developed for water supply because more permeable aquifers are present at shallower depths, and water from the Lloyd commonly has undesirably high concentrations of iron. Additionally, the Lloyd aquifer is overlain by the extensive, thick, low permeability (confining) Raritan Clay (Appendix 1.3-3). Therefore, the Lloyd aquifer will not be considered further by this Phase I investigation.

The aquifers of Long Island are hydraulically interconnected and although beds and discontinuous layers of silt and clay within and between aquifers serve to confine water below them, they do not completely prevent the vertical movement of water through and around them. Soren (Appendix 1.3-3) presents data which reflect the high degree of hydraulic interconnection between the upper glacial and Magothy aquifers in the vicinity: (1) for wells completed in the upper glacial and Magothy aquifers in nearby Brentwood and Hauppauge, the head in these two aquifers decrease at a fairly uniform rate with increasing depth, and (2) water-level fluctuation in the same well groups were very similar. Soren also reports that the estimated downward velocity of water through the Magothy aquifer in the vicinity of the ground-water divide in 1968 (along which the site is located) was 0.006 ft/day (approximately 2.2 ft/year).

Recharge to the upper glacial aquifer is derived entirely from precipitation. Recharge to the Magothy and Lloyd aquifers is derived entirely from the downward movement of water from each overlying aquifer (Appendix 1.3-5). In

general, recharge to the lower aquifers occurs near the center of Long Island and discharge occurs along the edge of Long Island to the ocean and Long Island Sound. The average annual precipitation in the area is 46 in, of which 24 in. is estimated to infiltrate to the water table (Appendix 1.3-1). The remainder of the precipitation is returned to the atmosphere by evaporation and transpiration, except for a small amount of runoff to streams.

The upper glacial aquifer is the most permeable aquifer on Long Island with an estimated horizontal permeability of 1,000-1,500 gpd/ft^2 (Appendix 1.3-3). In 1968, it was estimated in the region that water in the upper glacial aquifer was moving horizontally at rates less than 0.5 ft/day in areas distant from centers of pumping and to hundreds of ft/day near the screens of pumping wells (Appendix 1.3-3). The permeability of the underlying Magothy aquifer ranges widely depending upon the presence and amount of clay and silt. In 1968, it was estimated in the region that water in the Magothy aquifer was moving horizontally at rates less than 0.2 ft/day in areas distance from pumping, and to hundreds of ft/day near screens of pumping wells.

Based upon the March 1985 ground-water table contour map (SCDHS), the depth to ground water is estimated to be approximately 15 ft below ground surface, and the regional ground-water natural (unaffected by pumping) flow direction appears to be toward the south southeast. Within 3 mi of the site, the Magothy portion of the aquifer of concern has been developed by eight Suffolk County Water Authority well fields, three East Farmingdale Water Authority well fields, and in Nassau County, one Farmingdale Village Water Authority well field. Appendix 1.3-6 provides a list of the municipal wells located within 3 mi of the site. The developed area within 3 mi of the site appears to be

served by four public water systems (Suffolk County Water Authority, East Farmingdale Water District, South Huntington Water District, and Dix Hills Water District) and two public water systems in Nassau County (Farmingdale Village Water Authority and South Farmingdale Water Authority).

4.4 SITE CONTAMINATION

Waste Types and Quantities

The average total industrial waste flow from NTU was estimated in 1981 to be 6,205 gal/day (Appendix 1.1-4). The SCDHS repeatedly sampled the contents of onsite leachpools from 1979 through 1982. Samples collected from all of the leach pools were found to be contaminated. The leach pool samples contained cadmium (0.03-0.07 mg/liter), silver (0.36-1.1 mg/liter), copper (3.8-440 mg/liter), iron (1.3-28 mg/liter), lead (0.2-4.6 mg/liter), hexavalent chromium (0.15 mg/liter), fluoride (3.2 mg/liter), and total solids (101-3,983 mg/liter) (Appendixes 1.1-6 and 1.4-1). The pH varied widely from 3 to 11 (Appendix 1.1-6). SCDHS inspectors observed a bluish and/or foamy liquid being discharged into the SD-3 pool and, from there, into adjoining pool SD-7 (Appendixes 1.1-5, and 1.1-7 through 1.1-9).

Ground Water

No data available.

Surface Water

No data available.

Soil

No data available.

Air

No HNU readings above background were detected from the old NTU building during EA's site inspection on 22 January 1986.

NTU CIRCUITS, INC.
TOWN OF BABYLON, SUFFOLK COUTNY

The NTU Circuits, Inc. site is the former business location of NTU Circuits, where they manufactured printed circuit boards for electronic applications. NTU leased the eastern portion of a building located at 60 Dale Street, Town of Babylon, Suffolk County, New York between 1978 and 1983. Spectrum Finishing Corp. is the current owner of the building, having purchased the property from Mr. James Gray in 1981. The site is located in an industrial park.

Six leach pools were present at the site during NTU's operations. The Suffolk County Department of Health Services (SCDHS) repeatedly notified NTU Circuits that the contents of the leaching pools were in violation of ground-water effluent standards and NTU's SPDES permit. SCDHS collected samples from the pools from 1979 until 1982, and the samples contained elevated levels of copper, cadmium, lead, silver, iron, flouride, and total solids. On two occasions, the pool SD-3 was observed to be overflowing onto the ground and/or into adjacent storm drains.

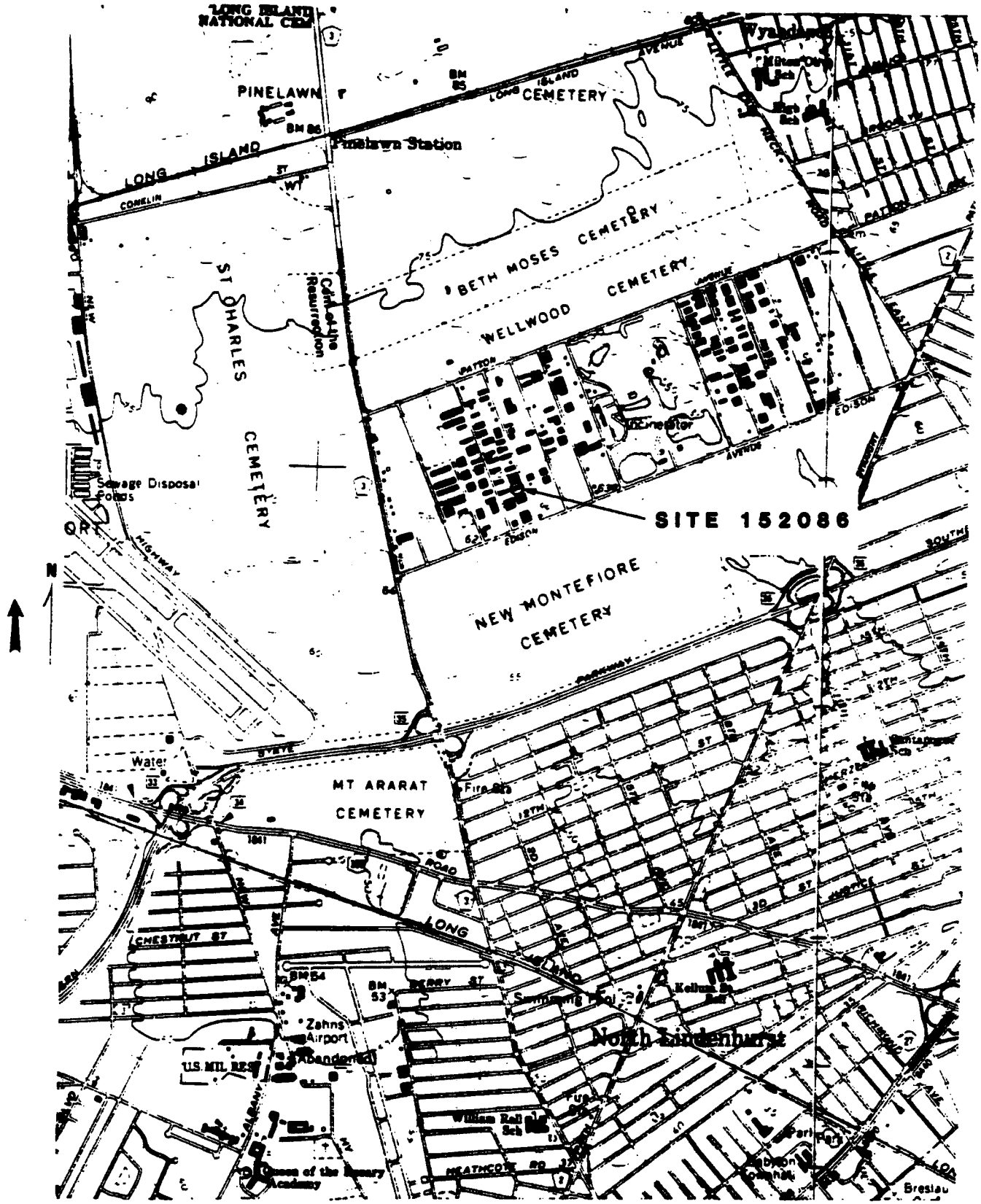
In 1982, the New York State Attorney General filed a case against NTU Circuits, Inc. The settlement took place on 30 April 1982, and resulted in NTU having to clean up all six of the existing pools at the site.

NTU Circuits performed the cleanup in the presence of SCDHS officials, who affirmed that the leaching pools were cleaned properly. In order to confirm a release of contaminants from the site to the ground water, further environmental study and sampling is recommended

Coordinates:

Latitude: 40° 43' 52"
Longitude: 73° 23' 23"

NTU CIRCUITS, INC.



AMITYVILLE & BAY SHORE WEST QUADS.

Scale 1: 24,000

Facility name NTU Circuits, Inc.

Location: Town of Babylon, Suffolk County

EPA Region II

Person(s) in charge of the facility: Mr. William DeChirico, Owner

50 Dale Street

Babylon, New York 11704

Name of Reviewer EA Science and Technology Date 3 September 1986

General description of the facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

The site is an inactive industrial site located on Dale Street, Town of Babylon, New York which operated from 1978 until 1983 and was involved in the production of circuit boards. NTU was repeatedly notified by the Suffolk County Department of Health Services that the contents of leaching pools on the premises were in violation of ground water effluent standards and NTU's SPDES permit. The liquid wastes contained heavy metals, flouride, and excessive total solids. In 1982, the New York State Attorney General filed a case against NTU. Based on the settlement, all leachpools at the site were cleaned by NTU in November-December 1983. In September 1983, NTU moved to a new location. During EA's site inspection, it was observed that the SD-3 leachpool, which had been paved over, was re-

Scores: S_M =31.03 S_{gw} =53.69 S_{sw} = 0 S_a = 0

S_{FE} = N/A

S_{DC} = 0

Maximum S_M = 31.03

FIGURE 1
HRS COVER SHEET

opened. The tampering with this closed pool reportedly occurred after cleaning and closure by NTU and did not involve NTU.

Ground Water Route Work Sheet						Max. Possibl
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max Score	Ref (Section)	
1 Observed Release	(0) 45	1	0	45	3.1	45
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.						
2 Route Characteristics					3.2	
Depth to Aquifer of Concern	0 1 2 (3)	2	6	6		
Net Precipitation	0 1 (2) 3	1	3	3		
Permeability of the Unsaturated Zone	0 1 2 (3)	1	3	3		
Physical State	0 1 2 (3)	1	3	3		
Total Route Characteristics Score			15	15		
3 Containment	0 1 2 (3)	1	3	3	3.3	
4 Waste Characteristics					3.4	
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18		
Hazardous Waste Quantity	0 (1) 2 3 4 5 6 7 8	1	1	8		
Total Waste Characteristics Score			19	26		19
5 Targets					3.5	
Ground Water Use	0 1 (2) 3	3	6	9		
Distance to Nearest Well/Population Served	0 4 6 8 10 / 12 16 18 20 / 24 30 32 (35) 40	1	30	40		
Total Targets Score			36	49		36
6 If line 1 is 45, multiply 1 x 4 x 5 / If line 1 is 0, multiply 2 x 3 x 4 x 5			30,780	57.330		30,780
7 Divide line 6 by 57.330 and multiply by 100	S_{gw} = 53.69					53.69

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Shee:						
Rating Factor	Assigned Value (Circle One)		Multi-plier	Score	Max Score	Ref (Section)
1 Observed Release	(0)	45	1	0	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2						
2 Route Characteristics						4.2
Facility Slope and Intervening Terrain	(0) 1 2 3		1	0	3	
1-yr. 24-hr. Rainfall	0 1 (2) 3		1	2	3	
Distance to Nearest Surface Water	(0) 1 2 3		2	0	6	
Physical State	0 1 2 (3)		1	3	3	
Total Route Characteristics Score				5	15	
3 Containment	(0) 1 2 3		1	0	3	4.3
4 Waste Characteristics						4.4
Toxicity/Persistence	(0) 3 6 9 12 15 18		1	0	18	
Hazardous Waste Quantity	(0) 1 2 3 4 5 6 7 8		1	0	8	
Total Waste Characteristics Score				0	26	
5 Targets						4.5
Surface Water Use	(0) 1 2 3		3	0	9	
Distance to a Sensitive Environment	(0) 1 2 3		2	0	6	
Population Served/Distance to Water Intake Downstream	(0) 4 6 8 10 12 16 18 20 24 30 32 35 40		1	0	40	
Total Targets Score				0	55	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				0	64,350	
7 Divide line 6 by 64,350 and multiply by 100			S_{SW} = 0			

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max Score	Ref (Section)
1 Observed Release	(0) 45	1	0	45	5.1
Date and Location:					
Sampling Protocol:					
If line 1 is 0, the S_a = 0. Enter on line 5 If line 1 is 45, then proceed to line 2					
2 Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
3 Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
	Total Targets Score			39	
4 Multiply 1 x 2 x 3				35,100	
5 Divide line 4 by 35,100 and multiply by 100		S_a = 0			

FIGURE 9
AIR ROUTE WORK SHEET

	S	S^2
Groundwater Route Score (S_{gw})	53.69	2,882.62
Surface Water Route Score (S_{sw})	0	0
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		2,882.62
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		53.69
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		31.03

FIGURE 10
WORKSHEET FOR COMPUTING S_M

Maximum S_M = 31.03

Fire and Explosion Work Sheet:						
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max Score	Ref (Section)
1 Containment	1 3	1		3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Total Targets Score				24	
4 Multiply 1 x 2 x 3				1,440	
5 Divide line 4 by 1,440 and multiply by 100			S_{FE} = N/A		

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max Score	Ref. (Section)
1 Observed Incident	(0) 45	1	0	45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 (3)	1	3	3	8.2
3 Containment	(0) 15	1	0	15	8.3
4 Waste Characteristics Toxicity	(0) 1 2 3	5	.0	15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 2 3 4 (5)	4	20	20	
Distance to a Critical Habitat	(0) 1 2 3	4	0	12	
Total Targets Score			20	32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			0	21,600	
7 Divide line 6 by 21,600 and multiply by 100		S_{DC} = 0			

FIGURE 12
DIRECT CONTACT WORK SHEET

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

INSTRUCTIONS: As briefly as possible, summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference. Include the location of the document.

FACILITY NAME: NTU Circuits,Inc.

LOCATION: Town of Babylon, Suffolk County

DATE SCORED: 3 September 1986

PERSON SCORING: EA Science and Technology

PRIMARY SOURCES(S) OF INFORMATION (e.g., EPA region, state, FIT, etc.)

Suffolk County Department of Health Services
Mr. Wayne DeChirico, Spectrum Finishing Corp.
Mr. Richard Gregorski; NTU Circuits, Inc.
Mr. Errol Kit; Fanning, Phillips, and Molner Engineers

FACTORS NOT SCORED DUE TO INSUFFICIENT INFORMATION:

Air Route
Confirmation of a release to ground water

COMMENTS OR QUALIFICATIONS:

Ambient and downgradient ground-water quality are unavailable. The ground-water route is scored on the basis of confirmed contamination in onsite cesspools. The local fire marshal does not consider the site to be an imminent fire or explosion threat.

Direct contact score is based upon release of the waste fluids directly to the subsurface via leach pools.

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

No analytical data available (Chapter 3).

Assigned value = 0.

Reference: 6.

Rationale for attributing the contaminants to the facility:

***

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

The Pleistocene Age Upper Glacial deposits and the Cretaceous Age Magothy Formation.

References: 1, 2, and 3.

Depth(s) from the ground surface to the highest seasonal level of the saturated zone (water table[s]) of the aquifer of concern:

15 ft.

References: 4 and 5.

Depth from the ground surface to the lowest point of waste disposal/storage:

Unknown. Estimate 6-ft depth of cesspool.

Depth to aquifer of concern is estimated to be 9 ft.

Assigned value = 3.

Reference: 6.

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

Mean annual lake or seasonal evaporation (list months for seasonal):

Net precipitation (subtract the above figures):

24 in.

Reference: 1.

Assigned value = 3.

Reference: 6.

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Sand and gravel.

Reference: Report Section 4.3.

Permeability associated with soil type:

$>10^{-3}$ cm/sec.

Assigned value = 3.

Reference: 6.

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

Liquid.

References: 8 and 9.

Assigned value = 3.

Reference: 6.

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Wastes discharged via pipes to underground leach pools.

References: 8 and 9.

Method with highest score:

No containment in respect to ground water.

Assigned value = 3.

Reference: 6.

***

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Cadmium, copper, iron, lead, hexavalent chromium, silver, flouride.

Reference: 10.

Compound with highest score:

Cadmium, copper, iron, lead, hexavalant chromium.

Reference = 6.

Assigned value = 18.

Reference: 6.

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

Unknown. According to a study performed by NTU in 1981, combined processes at the site at that time produced an average effluent volume of 6,205

gal/day; however, it is not clear how much of that effluent was actually discharged to the cesspools or how much of it was contaminated.

Reference: 26.

Basis of estimating and/or computing waste quantity:

Minimum quantity assumed.

Assigned value = 1.

Reference: 6.

***

5 TARGETS

Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

Drinking water with municipal water from alternate sources presently available.

References: 11, 12, 13, and 14.

Assigned value = 2.

Reference: 6.

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

Suffolk County Water Authority well located at the Gordon Avenue wellfield.

Reference: 14.

Distance to above well or building:

Approximately 6,400 ft from site.

References: 11 and 14.

Assigned value = 2.

Reference: 6.

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

Community Supplies:	Population:
Suffolk County Water Authority	207,689
Farmingdale Village Water Authority	10,000
E. Farmingdale Water Authority	5,700
	231,239

References: 11-14, 27, and 29.

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

Approimately 175 acres of land are used for agricultural purposes within a 3-mi radius of the site. However, irrigation wells on agricultural land in Suffolk County are not registered by any regulatory agency, so there are no lists or descriptions of the locations of these wells.

References: 15 through 19.

Total population served by ground water within a 3-mile radius:

225,539. Assigned value = 5. Combined assigned value = 35.

Reference: 6.

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

No data available (Chapter 3).

Assigned value = 0.

Reference: 6.

Rationale for attributing the contaminants to the facility:

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

Zero. Site is a below-grade leaching pool.

Reference: 7.

Name/description of nearest downslope surface water:

Neguntatogue Creek.

Reference: 5.

Average slope of terrain between facility and above-cited surface water body in percent:

0-2 percent. Estimated using a Suunto clinometer and from topographic map.

References: 5 and 7.

Is the facility located either totally or partially in surface water?

No.

References: 5 and 7.

Is the facility completely surrounded by areas of higher elevation?

No.

References: 5 and 7.

Assigned value = 0.

Reference: 6.

1-Year, 24-Hour Rainfall in Inches

2.5 in.

Assigned value = 2.

Reference: 6.

Distance to Nearest Downslope Surface Water

2.3 mi.

Reference: 5

Assigned value = 0.

Reference: 6.

Physical State of Waste

Liquid.

References: 8 and 9.

Assigned value = 3.

Reference: 6.

***

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Wastes were discharged through pipes to underground leach pools, and even if a leach pool overflowed, the overflow would drain into another nearby catch basin/leach pool. Therefore, wastes were surrounded by diversion structures which were adequate to preclude runoff to a natural waterbody. In addition, the overland route for runoff to surface water is interrupted by several highways, recharge basins, and a railroad.

References: 5, 20, and 21.

Method with highest score:

Assigned value = 0.

Reference: 6.

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Containment score = 0; therefore, waste characteristics are not evaluated.

Reference: 6.

Compound with highest score:

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

Basis of estimating and/or computing waste quantity:

***

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Perennial stream. Not currently used.

Reference: 22.

Assigned value = 0.

Reference: 6.

Is there tidal influence?

No.

Reference: 5.

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

None within 2 mi.

Reference: 5.

Distance to 5-acre (minimum) freshwater wetland, if 1 mile or less:

None within 1 mi.

Reference: 5.

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

None within 1 mi.

Reference: 23.

Assigned value = 0.

Reference: 6.

Population Served by Surface Water

Location(s) of water supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static waterbodies) downstream of the hazardous substance and population served by each intake:

None.

References: 12 and 16.

Assigned value = 0.

Reference: 6.

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre).

None. The major source of irrigation water in Suffolk County is ground water from wells. Generally, surface water is not utilized for this purpose.

References: 15 and 16.

Total population served:

Zero.

References: 11, 12, 15, and 16.

Assigned value = 0.

Name/description of nearest of above waterbodies:

Distance to above-cited intakes, measured in stream miles:

AIR ROUTE

No data available from any of the agency files examined (Chapter 3). During EA's inspection (22 January 1986), total volatile organics were measured using a photoionization detector (HNU). No HNU readings above background were measured.

Assigned value = 0.

Reference: 6.

1 OBSERVED RELEASE

Contaminants detected:

Date and location of detection of contaminants

Methods used to detect the contaminants:

Rationale for attributing the contaminants to the site:

***

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Most incompatible pair of compounds:

Toxicity

Most toxic compound:

Hazardous Waste Quantity

Total quantity of hazardous waste:

Basis of estimating and/or computing waste quantity:

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 to 1/4 mi

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) freshwater wetland, if 1 mile or less:

Distance to critical habitat of an endangered species, if 1 mile or less:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

FIRE AND EXPLOSION

The local fire marshal has not certified that the site presents a significant fire or explosion threat (Reference: 24). There are no analytical data available in any of the agency files (Chapter 3).

1 CONTAINMENT

Hazardous substances present:

Type of containment, if applicable:

***

2 WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

Ignitability

Compound used:

Reactivity

Most reactive compound:

Incompatibility

Most incompatible pair of compounds:

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

Basis of estimating and/or computing waste quantity:

***

3 TARGETS

Distance to Nearest Population

Distance to Nearest Building

Distance to Sensitive Environment

Distance to wetlands:

Distance to critical habitat:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

Population Within 2-Mile Radius

Buildings Within 2-Mile Radius

DIRECT CONTACT

1 OBSERVED INCIDENT

Date, location, and pertinent details of incident:

No observed incident on record.

Reference: Section 3.

Assigned value = 0.

Reference: 6.

***

2 ACCESSIBILITY

Describe type of barrier(s):

Barriers do not completely surround the facility.

Reference: 7.

Assigned value = 3.

Reference: 6.

***

3 CONTAINMENT

Type of containment, if applicable:

Leachpools are adequately covered.

Reference: 7.

Assigned value = 0.

Reference: 6.

4 WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

Containment score = 0. Therefore, waste characteristics are not evaluated.

Reference: 6.

Compound with highest score:

***

5 TARGETS

Population Within 1-Mile Radius

10,962. Estimated 25 percent of the population of Wyandoch (3,304), 15 percent of West Babylon (6,522), and 20 percent of East Farmingdale (1,136).

Assigned value = 5.

References: 6 and 28.

Distance to Critical Habitat (of Endangered Species)

None within 1 mi.

Reference: 23.

Assigned value = 0.

Reference: 6.

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20. Kitt, Errol S. 1986. Fanning, Phillips, and Molner, Consulting Engineers. Report Review and Verification of Interview Acknowledgement Form for NTU Circuits Site. (Appendix 1.1-3.)

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23. Ozard, J.W. 1986. Senior Wildlife Biologist. NYSDEC Wildlife Resources Center, Significant Habitat Unit. Personal Communication. 26 February (Appendix 1.5-6.)

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29. SCWA. 1986. Active Service Estimates and Service Area Map. (Appendix 1.5-8.)

REFERENCE NO. 5

02-8801-20-PA
REV. NO. 0

PRELIMINARY ASSESSMENT
NTU CIRCUITS, INC.

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO. 02-8801-20
CONTRACT NO. 68-01-7346

FOR THE

ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

MARCH 11, 1988

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY:

ROBERT NIES
PROJECT MANAGER

REVIEWED/APPROVED BY:

RONALD M. NAMAN
FIT OFFICE MANAGER

NUS CORPORATION

POTENTIAL HAZARDOUS WASTE SITE

PRELIMINARY ASSESSMENT

02-8801-20-PA
Rev. No. 0

NTU Circuits, Inc.	NYD981562614
Site Name	**EPA Site ID Number**
60 Dale Street, West Babylon, New York	02-8801-20
Address	**TDD Number**

Date of Site Visit: Off-site reconnaissance, 01/18/88

SITE DESCRIPTION

The NTU Circuits, Inc. Site is located in an industrial park in West Babylon, Suffolk County, New York. Printed circuit boards for electronic applications were manufactured at the facility. Part of the NTU Circuits building was occupied by Welding Metallurgy during the time that NTU was in operation.

The site consisted of six leaching pools which received discharge from the manufacture of printed circuit boards. The leaching pools were under SPDES regulations; however, NTU violated the SPDES effluent standards on several occasions. The Suffolk County Health Department (SCHD) also documented that the pools were overflowing and running into adjacent storm drains.

As a result of past violations, the SCHD obtained a Consent Order from NTU Circuits to clean up all existing leaching pools prior to their moving to a new facility located in Bayshore, New York. The waste that was removed was taken to the new facility and treated in their on-site waste treatment plant.

Presently, the site is occupied by Midmer, Inc. and Welding Metallurgy. The area of concern has been paved since 1983.

PRIORITY FOR FURTHER ACTION: High __ Medium __ No Further Action X

RECOMMENDATIONS

In December 1983, NTU Circuits excavated the leaching pits of all waste and several feet of natural soils from below the waste area. This was completed as a result of a Consent Order from the Suffolk County Health Department (SCHD). The SCHD was responsible for technical oversight of the removal procedures. (See Attachment)

Prepared by: Robert G. Nies
of NUS Corporation

Date: 03/11/88

RECOMMENDATIONS

The New York State Department of Environmental Conservation (NYSDEC) has also been involved with the site. They have completed a Phase I investigation and are considering a Phase II investigation.

A preliminary HRS score for the NTU Circuits Site is $S_m = 28.97$. This score is based on information from sampling conducted prior to the SCHD Consent Order for waste removal.

Based on the above information, it is recommended that no further action be taken at this time on the NTU Circuits Site under the Federal Superfund Program. A site followup inspection may be necessary to confirm the NYSDEC's course of action.

PRELIMINARY ASSESSMENT (PA) CHECKLIST

Part 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

State New York

Site Number NYD981562614

II. SITE NAME AND LOCATION

Site Name NTU Circuits, Inc.

Address 60 Dale Street, ~~West~~ Babylon, New York 11704

County Code 103

Congressional District 2

Coordinates (latitude and longitude in degrees, minutes, seconds, or Township and Ranger numbers). 40° 43' 52"N 73° 23' 23"W

Direction to site (starting from nearest public road). From Edison Avenue turn left onto Dale Street. The site is on the left hand side of the road.

III. RESPONSIBLE PARTIES

Owner(s) Spectrum Finishing Company 51 Cabot Street

Address (business, mailing, residential) ~~51 Cabot Street~~, ~~West~~ Babylon, New York

Telephone Number (516) 694-0306

Operator NTU Circuits

Address (business, mailing, residential) 60 Dale Street, ~~West~~ Babylon, New York

Telephone Number (516) 752-0265

Type of Ownership (specify private, Federal, state, county, municipal) Private

IV. REGULATORY STATUS

Clean Water Act (CWA)

- **Does the facility have an SPDES permit?** NTU Circuits has relocated but they did have a SPDES permit (No. NY010860) while at the facility. Ref. Nos. 1, 5
- **Is the facility in compliance with conditions of the permit?** No. The facility had discharge violations of copper, lead, iron, and cadmium. Ref. Nos. 2, 7, 8.

Solid Waste Disposal Act (SWDA) as amended by the Resource Conservation and Recovery Act (RCRA)

- **Is the facility a hazardous waste treatment storage, or disposal facility, or a combination facility?** Yes, the facility had a part 360 permit for the storage of waste drums. Ref. Nos. 3, 6.

V. SITE HISTORY

Site Operations (ongoing, abandoned) NTU Circuits is no longer located at this address. Presently, Midmer, Inc. is using the building space that NTU occupied previously. Ref. No. 13.

Years of Operation 1977 to October 1983

VI. INFORMATION SOURCE

Contact

Agency/Organization New York State Department of Environmental Conservation

Telephone Number (516) 751-7900

Person Responsible for Assessment Robert G. Nies

Agency/Organization NUS Corporation, Region 2 FIT

Telephone Number (201) 225-6160

Date of Completion March 11, 1988

Part 2 - WASTE INFORMATION

I. WASTE TYPE

Chemical Classification (organics, inorganics, pesticides, acids, bases, oily wastes, metals, etc.) Inorganics. Ref. Nos. 2, 4, 5.

II. HAZARDOUS SUBSTANCES

Description of Substances (type, volume) Copper, lead, iron, and cadmium. Volumes are unknown. Ref Nos. 2, 4, 5.

Physical State of Wastes as Deposited Liquid. Ref Nos. 1, 2.

Waste Quantity Unknown

Storage/Disposal Method Waste sludge and drag-out tank waste is stored in drums and hauled off every two weeks. SPDES discharge occurs during working hours Monday through Saturday.

Concentration if Known Copper - 4.5 mg/L, Lead - 8.6 mg/L. Ref. No. 4. Iron - 8.0 mg/L, cadmium - 0.03 mg/L, Ref. No. 2.

Waste Characteristics* Wastes are toxic and persistent. Ref. No. 15.

*Waste Characteristics: Toxic, corrosive, persistent, soluble, infectious, flammable, ignitable, highly volatile, explosive, reactive, incompatible.

- **Does the facility have interim status?** At the time the permit was issued, the facility had to upgrade their storage tanks and storage area to meet the regulations. Ref. Nos. 3, 4.
- **Has the facility filed Part A and/or Part B permit applications?** Unknown
- **Is it in compliance with conditions of the permit?** No violation has been reported
- **Is it an on-going facility or is it in closure or post-closure status?** Postclosure status
- **Has an enforcement action been taken against the user or operator?** Yes, NTU was forced by the Suffolk County Department of Health Services to empty the sanitary pools used for SPDES discharge. Ref. Nos. 9, 10, 11, 12.
- **Are there units at the facility that are not covered by RCRA?** No

Marine Protection, Research, and Sanctuaries Act of 1972
- **Does the facility have a permit issued by EPA or the Corps of Engineers for the transport and dumping of dredged materials into ocean waters?** No

Safe Drinking Water Act (SDWA)
- **Does the facility have an underground injection control permit?** No
- **Are the substances involved subject to Maximum Contaminant Level (MCL) goals?** Yes

Clean Air Act (CAA)
- **Is the facility subject to primary and secondary ambient air quality standards under the Clean Air Act?** No
- **Is the facility subject to new stationary source performance standards?** No
- **Does the facility have a Part C or Part D permit?** Unknown

Atomic Energy Act (AEA)
- **Does the release involve source, by-product, or special nuclear incident and come within the financial protection requirements established by the Nuclear Regulatory Commission (NRC)?** No
- **Is the facility licensed by the NRC?** No

Surface Mining Control and Reclamation Act (SMCRA)
- **Is the site subject to the reclamation requirements for abandoned mine sites?** No
- **Does the facility have a surface mining permit?** No

Nuclear Waste Policy Act (NWPA) and the Low-Level Radioactive Waste Policy Amendments Act (LLRWPAA)
- **Is the facility a low-level radioactive waste disposal facility?** No

Uranium Mill Tailings Radiation Control Act (UMTRCA)
- **Is the site licensed by the NRC?** No
- **Have the licensing conditions been violated?** No
- **Is the site potentially subject to remedial action by a State or the NRC?** No

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
- **Is the involved substance subject to and in compliance with registration requirements of FIFRA?** No. This does not apply.

Toxic Substances Control Act (TSCA)
- **Is the involved substance entered in the inventory maintained by EPA under the requirements of TSCA?** No

III. WASTE CONTAINMENT

Methods of waste storage and disposal used. Solid waste was stored in 55-gallon drums and disposed of by a hauler biweekly. Liquid wastes were discharged into sanitary pools daily under a SPDES permit. Ref. Nos. 1, 2, 3, 4.

Describe the condition (effectiveness) of each storage disposal unit. The drums were stored in a bermed area on an impermeable surface. The sanitary pools were not effective because of the potential for groundwater contamination. Ref. Nos. 1, 2, 3, 4.

Is there a run-on diversion system for storage and disposal units at the site? The storage area was bermed but the disposal area had no run-on diversion systems. Ref. Nos. 3, 4.

Do any of the storage or disposal units have natural or artificial liners to prevent waste migration? The part 360 permit states that the waste drums must be placed on an impermeable surface with a dike or berm surrounding it. The sanitary pools discharge directly to the groundwater system. There are no liners below the sanitary pools. Ref. Nos. 1, 3, 8.

Does the site or individual storage or disposal units have any type of leachate collection system? No. Ref. Nos. 3, 4.

If waste piles are present on site, are they stabilized and/or covered? There is no waste presently on site. NTU removed it under a Consent Order from the Suffolk County Department of Health Services in December 1983.

PART 3 - SITE CHARACTERISTICS AND MIGRATION ROUTES

I. GROUND WATER ROUTE

Does quantitative data exist for an observed groundwater release? If yes, note types of contamination and provide analytical findings (levels reported). No. There are several monitoring wells in the area of NTU Circuits; however, they are not sufficient to determine an observed release. Ref. No. 16.

Does qualitative evidence exist for a groundwater release (i.e., objectionable taste or smell)? If yes, explain. No. There is no documentation to support a qualitative release to groundwater.

Do monitoring wells exist? How many? There are a number of monitoring wells in the area at two nearby CERCLA sites; however, the exact number is unknown. There are no wells at the former NTU Circuits facility. Ref. Nos. 14, 16, 27.

Are monitoring wells contaminated? The wells near the Babylon Landfill Site which is 2 blocks east of the NTU Site, have confirmed contamination; however, it is not associated with the NTU Circuits facility. Ref. No. 17.

Are private, public and/or commercial wells contaminated? If yes, explain. There are no wells that have been closed due to contamination from the site. The NYSDEC is considering monitoring well installation to determine possible groundwater contamination. Ref. No. 16.

Describe the stratigraphy from the surface to the aquifer of concern (names, thickness, type of material). 1) Upper Glacial Aquifer - Pleistocene Age glacial outwash deposits made up of sand and gravel. The formation is approximately 75 feet thick. 2) Magothy Aquifer - Cretaceous Age sand, silt, and clay deposits approximately 800 feet thick. The Gardiners Clay may be present beneath the site in certain areas but it is not believed to be continuous. This clay would be positioned between the Upper Glacial and the Magothy Aquifers. Ref. Nos. 22, 23, 24, 25.

What is the distance to the nearest well? The Suffolk County Water Authority well located at the Gordon Avenue well field is approxiamtely 6400 feet from the site. Ref. No. 26.

Which aquifers are the private, public and/or commercial wells screened in? Name and describe known or potential aquifers. The wells, private and public, are screened in the Upper Glacial and the Magothy Aquifers. Ref. Nos. 25, 27.

Types of aquifers/aquitards:

- **Type** Overburden (The Upper Glacial and the Magothy Aquifers are hydraulically connected.
- **Thickness** 0-800 feet
- **Depth** 800 feet
- **Aquifer of Concern** Upper Glacial and the Magothy Aquifers
- **Contaminated?** The Upper Glacial has documented TCE contamination. Ref. No. 27.

Does any evidence exist for aquifer/aquitard discontinuities or aquifer interconnections? Explain. There is evidence of the Gardiners Clay existing below the site; however, it is not known to be continuous within the 3-mile radius of the site.

Are background (upgradient) wells available? No. There are wells in the area but there are other potential sources in the area that may cause contamination. Ref. No. 16.

Estimate net precipitation(total precipitation minus evapotranspiration). 15 inches. Ref. No. 15.

Does site geology minimize the potential for migration of contaminants to underlying aquifers? If yes, explain. No. The soils below the site consist mainly of sand and gravel material which are highly permeable. Ref. Nos. 22, 24, 25, 27.

Do the containment procedures utilized at the facility prevent migration of contaminants to underlying aquifers? If yes, explain. No. They did not have any containment structures. The discharge was directly to the groundwater system. Ref. Nos. 1, 2, 4, 5, 7, 8.

Do any potential barriers to horizontal groundwater migration exist within 4 miles of the facility for (HRS purposes, a barrier must completely transect an aquifer)? If yes Explain. No. Geologic information does not indicate any barriers to exist within 4 miles of the site. Ref. Nos. 22, 24, 27.

Is groundwater used for drinking water? If yes, is it obtained from private well(s) or public supply well(s)? Describe the location, depth and screened interval(s) of each well. Yes. There are public wells in the area. See Reference Number 26 for description of wells. Ref. No. 26.

Is an unthreatened, alternate water source presently available with minimum hook-up requirements? If yes, explain. Yes. The Suffolk County Water Authority Water System consists of several well fields in the area; therefore, other wells could be utilized if a well were to become contaminated. Ref. Nos. 20, 26.

Is groundwater used for other purposes? Possibly for irrigation, but these wells are not regulated by any department. Ref. No. 28.

Estimate the population on groundwater within a 4-mile radius of the site (assume 3.8 persons per residence or residential well). The total population served by groundwater is 231,239. Ref. No. 26.

Do forage crops exist that are irrigated by water drawn from the aquifer of concern? If yes, estimate the number of acres. There may be some forage crops that are irrigated by groundwater but the wells are not registered with any state departments. Ref. No. 28.

Estimate the population served by groundwater indirectly through irrigation (assume 1.5 persons per acre). Unknown

II. SURFACE WATER ROUTE

Does quantitative data exist for an observed surface water release? If yes, note types of contamination and provide analytical findings (levels reported). No

Does qualitative evidence exist for a surface water release (i.e., objectionable color, taste or smell)? No

What is the type(s) of nearby surface water? There are no surface waters near the site that would have a direct migratory pathway from the site. Ref. No. 18.

Creek
Stream and/or River (continuously flowing)
Pond
Lake
Swamp/Marsh

Is the facility located in surface water (i.e., swamp/marsh)? No. Ref. No. 18.

Provide a 1-year, 24-hour rainfall estimate for the site in inches. 26 inches, Ref. No. 15.

Estimate facility slope and slope of intervening terrain, i.e., between beginning of overland migration path and probable point of entry into surface water (calculate from topographic map). The facility slope is less than 1 percent. The nature of the intervening terrain is not relevant because there is no surface water in the immediate vicinity of the site. Ref. Nos. 13, 15.

Does surface topography at the site minimize the potential for migration of contaminants to surface water? Yes. There are no surface waters in the immediate vicinity of the site; therefore, there is no potential for surface water contamination. Ref. No. 15.

What is the distance along the overland segment of the migration path(s) from the most downslope point of potential contamination (use site boundary as a first approximation) to the probable point of entry into surface water? Not applicable. Ref. No. 15.

What are the surface water uses in the vicinity of the site (5-mile distance downstream)? Not applicable

Drinking Water
Recreation
Irrigation Commercial or Industrial
Economically Important Resources (i.e., shellfish)

Is there a coastal wetland (5-acre minimum) within 2 miles maximum, which could be contaminated? How far? No. Ref. No. 15.

Is there a fresh water wetland (5-acre minimum) within 1 mile maximum, which could be contaminated? How far? No. Ref. No. 15

Is there a critical habitat of a Federally designated endangered species within 1 mile maximum, which could be contaminated? How far? No. Ref. No. 19.

What is the distance to the nearest drinking water intake within 3 stream or 1 static water miles? There are no drinking water intakes within 3 miles of the site. Ref. No. 20.

What is the population using surface water intakes within 3 miles of the site (assume 3.8 persons per household)? In the case of multiple intakes, show the number persons served by each intake. Not applicable

Do forage crops exist that are irrigated by water from surface water intakes? If yes, estimate the number of acres. No. Ref. No. 28.

Estimate the population served by surface water indirectly through irrigation (assume 1.5 persons per acre). Not applicable

What is the total population using surface water? Not applicable

III. AIR ROUTE

Does quantitative data exist for an observed air release? If yes, note types of contamination and provide analytical findings (levels reported). Describe the sampling methods and equipment used to collect the analytical data. No.

Does qualitative evidence exist for an air release (i.e., odor, poor containment, high volatility contaminants)? No.

Have any citizens complaints regarding potential air releases (i.e., odor, nausea, illness) been recorded? When did they occur and what was the nature of the complaint? None documented.

List the names of the most incompatible pairs of materials found on-site. Describe the extent to which their presence poses a hazard. There is no waste or raw materials on site. All material was removed when NTU Circuits relocated its facility. Ref. Nos. 10, 11, 12.

Evaluate the toxicity of the most hazardous materials (5 maximum) at the facility that are capable of migration by the air route (volatiles, particulates), and are imperfectly contained with respect to the potential for air migration. Not applicable. There is no possibility for air contamination because no waste is on site. Ref. Nos. 9, 10, 11, 12.

Determine the population potentially exposed to contaminant release for 1/4, 1/2, 1 and 4 miles from the source. The distance to targets is a radial distance from the site without consideration of the prevailing wind direction. Assume 3.8 persons per residence for population counts. Not applicable

Is there a coastal wetland (5-acre minimum) within 2 miles maximum of the site, which could be contaminated? How far? No. Ref. No. 18.

Is there a freshwater wetland (5-acre minimum) within 1 mile maximum of the site, which could be contaminated? How far? No. Ref. No. 18.

Is there a critical habitat of a Federally designated endangered species within 1 mile maximum which could be contaminated? How far? No. Ref. No. 19.

PART 4 - FACTORS AFFECTING REMOVAL ACTION DECISIONS

1. DIRECT CONTACT THREAT

Does quantitative evidence exist for on-site soil contamination? If yes, note contaminant sources and summarize analytical results (levels reported). No. The leaching pools have been cleaned of all waste and the site has been paved. Ref. Nos. 9, 10, 11, 12.

Does qualitative evidence exist for on-site soil contamination (i.e., photographic evidence of spill areas or stressed vegetation)? No. Ref. No. 13.

Estimate the area affected or potentially affected by soil contamination (acres). The area potentially affected is less than 1 acre. Ref. No. 12.

Is site access restricted to non-facility personnel? How? Site access is not restricted; however, the sanitary pools have been cleaned out, filled with sand, and paved over since December 1985. Ref. No. 12.

Does the potential exist for facility personnel to easily come in contact with hazardous materials? If yes, how? No. The sanitary pool area is now paved over. Ref. No. 12.

Estimate the population within 1 mile of the facility (assume 3.8 persons per residence). There are 4744 people within 1 mile. Ref. No. 21.

As a result of recreational activities, is direct contact possible. No. The site is located within an industrial park. Ref. No. 13.

II. FIRE/EXPLOSIVE CONDITIONS

Has the State and/or local Fire Marshall certified that the site is a fire/hazard or presents an explosive threat? If yes, when was the determination made, and what circumstances led to that finding? No

Are incompatible or ignitable wastes present at the site? If yes, list them. No. All wastes were removed under a Consent Order from the Suffolk County Department of Health Services. Ref. No. 12.

If there is no confirmed threat (i.e., certified fire or explosive hazard), is there a potential threat? If yes, explain the nature of the potential threat. No. There are no wastes on site. Ref. No. 12.

What is the distance to the nearest population? The nearest residential population is less than $\frac{1}{4}$ mile; however, there are people working on site and at adjacent properties. Ref. Nos. 12, 21

Estimate the population within 2 miles of the site (assume 3.8 persons per residence). There are 39,423 people within 2 miles of the site. Ref. No. 21.

What is the distance to the nearest building? On site. Ref. Nos. 1, 4, 13

PART 5 - OTHER INFORMATION AREAS

I. SAMPLE DATA

- Sample objective
- Age/comparability
- Analytical methods
- Detection limits
- Sampling methods
- QA/QC
- Chain-of-custody
- Sample preservation
- Sample shipment
- Holding times

See Attachment

A brief narrative summary, addressing the above considerations, should be provided for each sample result.

II. CONTAMINATION OF FOOD CHAIN

Have there been contaminant impacts on food crops? If yes explain. If no, discuss the potential impacts. No

Have there been contaminant impacts on livestock (i.e., cattle, chickens)? If yes, explain. If no, discuss the potential impacts. No

III. DAMAGE TO FLORA AND FAUNA

Any observed occurrences (i.e., photo documentation) of damage to flora? If yes, give date and extent of damage. If no, describe the potential for damage. No. The site is within an industrial park; therefore, most of the surrounding property is void of any vegetation. Ref. No. 13.

Any observed occurrences of damage to fauna? If yes, give date and extent of damage. If no, describe the potential for damage. No. The site is located within an industrial park; therefore, the fauna population is limited in the area. Ref. No. 13.

IV. DAMAGE TO OFF-SITE PROPERTY

Have off-site properties (i.e., private/commercial real estate, storm drains, sewers, etc.) been damaged by site activities? If yes, give date(s) and describe event(s). If no, describe any potential problems. Yes. Storm drain contamination was confirmed on October 26, 1983 to be above the standard for the SPDES permit held by NTU Circuits. Ref. No. 2.

Has the facility received hazardous waste without a proper local, State and/or Federal permit(s)? If yes, give date(s) and describe event(s). No. They discharged waste into sanitary pools and also, stored it in drums on site. Ref. Nos. 1, 2, 3, 4.

Does site security (or lack of security) promote unauthorized dumping? Explain. No. The site is a building with only limited paved areas surrounding the facility. Ref. Nos. 4, 13.

ATTACHMENT

PART 5 - OTHER INFORMATION AREAS

I. SAMPLE DATA

On October 26, 1983 the Suffolk County Department of Health Services collected a sample from an on-site storm drain and sanitary cesspool, respectively. The sampling objective was to test for violation of a SPDES permit. The result showed the concentration to be higher than the maximum allowed in the SPDES permit. Lead, copper, iron, and cadmium all exceeded the standard for groundwater effluent. No other information is available on the sampling event or analyses. Ref. No. 2.

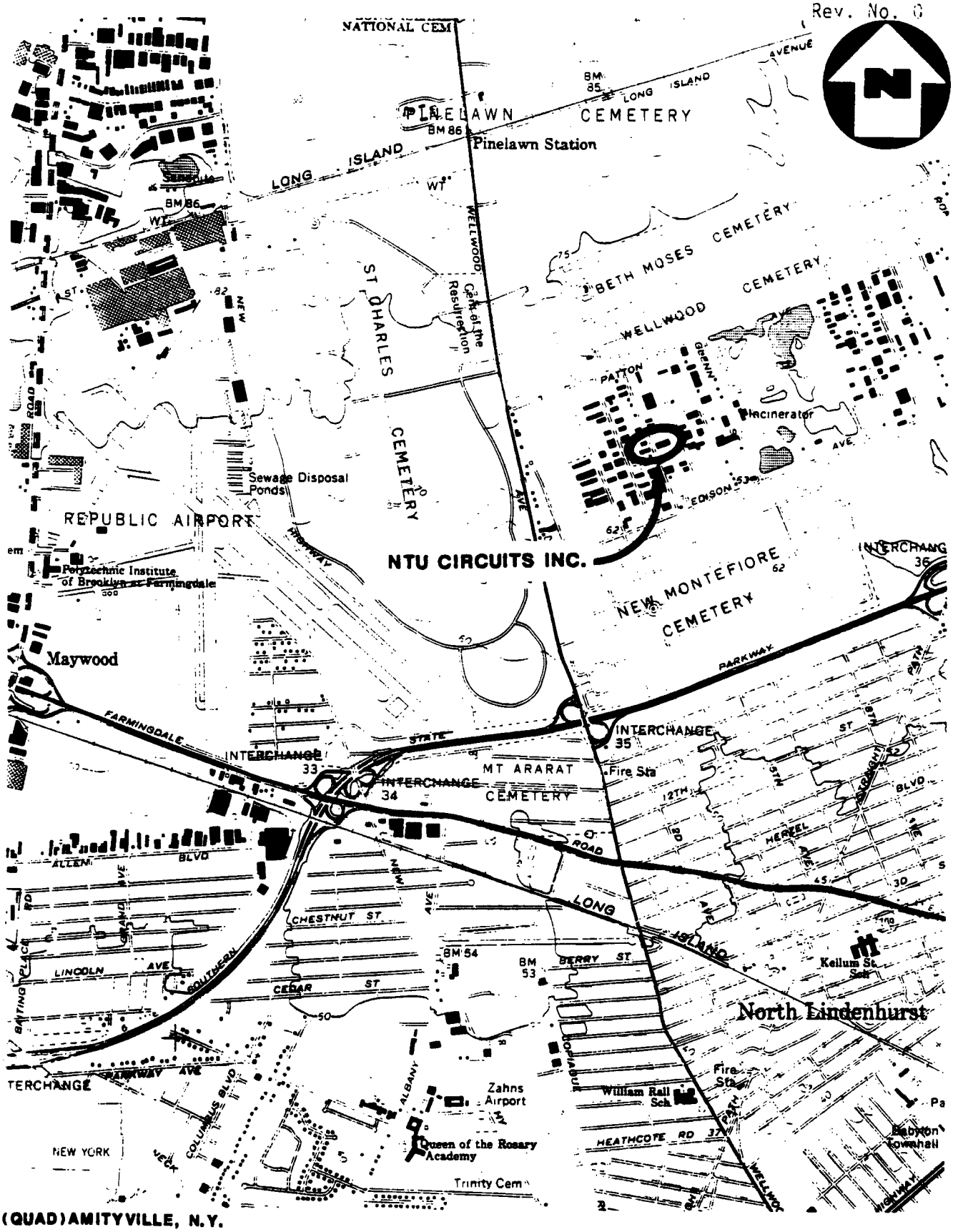
APPENDIX A

MAPS AND PHOTOS

NTU CIRCUITS, INC.
WEST BABYLON, NEW YORK

CONTENTS

02-8801-20
Rev. No. 0



SITE LOCATION MAP

NTU CIRCUITS INC., WEST BABYLON, N.Y.

SCALE: 1" = 2000'

FIGURE 1

NUS CORPORATION

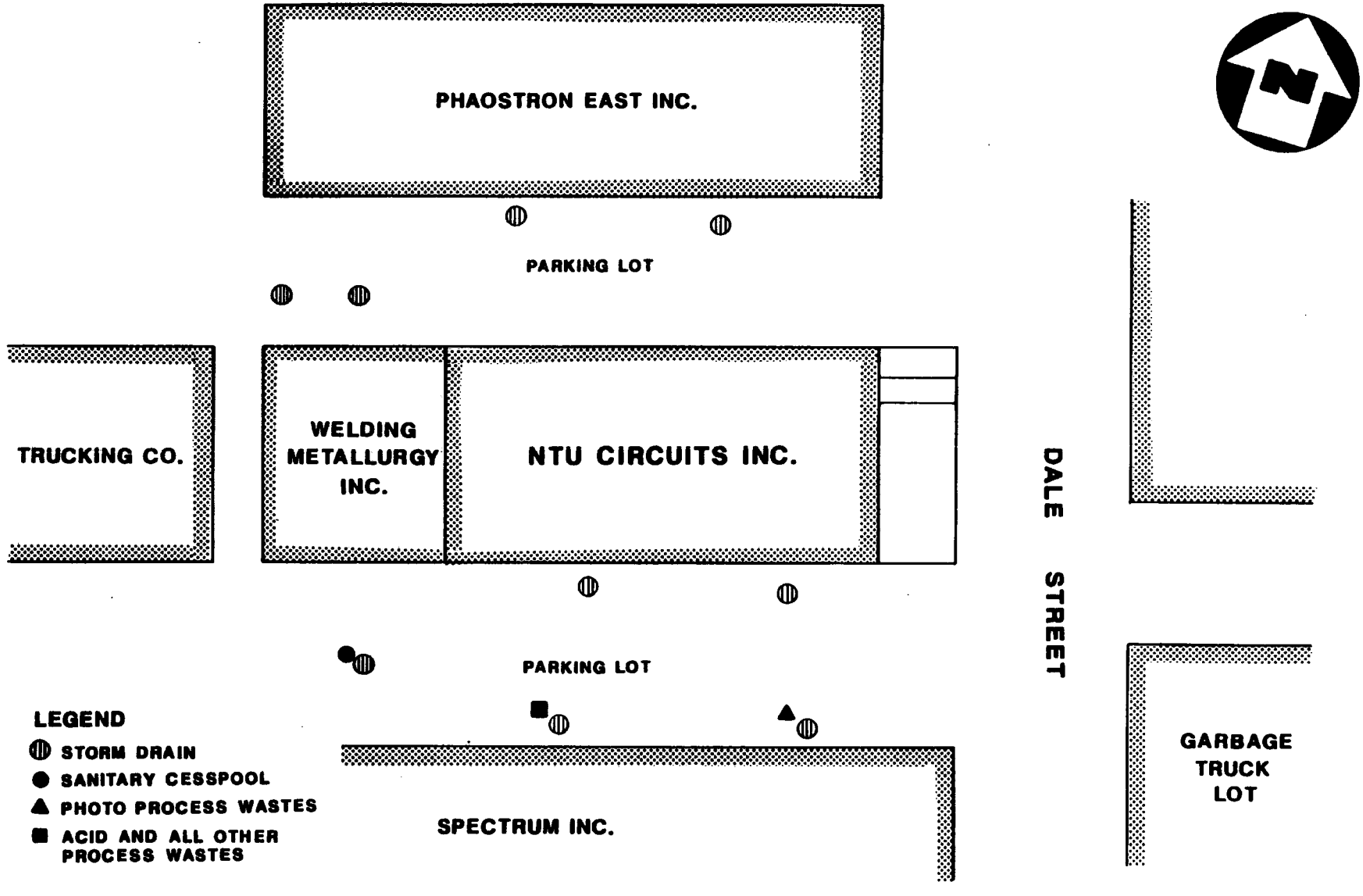


FIGURE 2

SITE MAP

NTU CIRCUITS INC., WEST BABYLON, N.Y.

(NOT TO SCALE)

NUS CORPORATION

EXHIBIT A

PHOTOGRAPH LOG

NTU CIRCUITS, INC.
WEST BABYLON, NEW YORK

Off-Site Reconnaissance: 1-18-88

NTU CIRCUITS
WEST BABYLON, NEW YORK

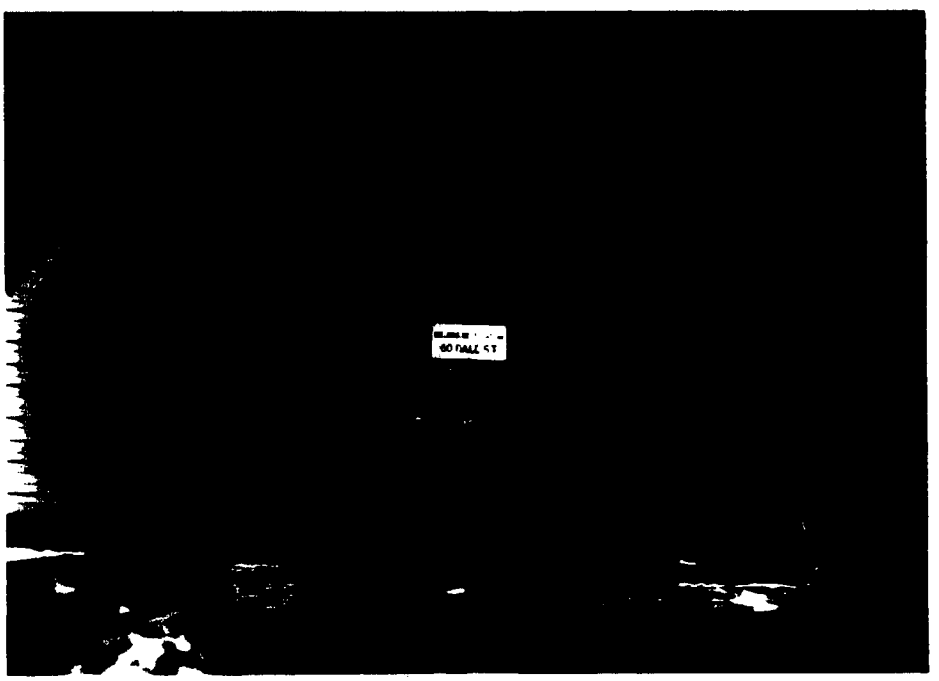
PHOTOGRAPH INDEX

Photo Number	Description	Time
1P-9	View of building off Dale St. facing west.	1603
1P-10	View of back portion of building, which is occupied by Welding Metallurgy, from driveway facing north west.	1617

ALL PHOTOGRAPHS TAKEN BY MIKE GENTILS.

NTU CIRCUITS, WEST BABYLON, NEW YORK

1P-9 January 18, 1988 1603
View of building off Dale St. facing west.



1P-10 January 18, 1988 1617
View of back portion of building, which is occupied by Welding Metallurgy from driveway facing north west.

REFERENCE NO. 6

Attachment: Part II-General Conditions

Copies: SPDES File
Region #1
Suffolk Co. DHS
Mr. Crandall - BPC
Mr. Adamczyk - BIP

(NY)(W)

Facility ID No. : NY 0103260

Effective Date (EDP) : October 1, 1980

Expiration Date (ExDP) : October 1, 1985

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES)
DISCHARGE PERMIT

Special Conditions
(Part I)

This SPDES permit is issued in compliance with Title 8 of Article 17 of the Environmental Conservation Law of New York State and in compliance with the Clean Water Act, as amended, (33 U.S.C. §1251 et. seq.) (hereinafter referred to as "the Act").

NTU Circuits, Inc.
60 Dale Street
West Babylon, NY 11704

Attention: Mr. Tim Wu, Owner

is authorized to discharge from the facility described below:

N. T. U. Circuits, Inc.
60 Dale Street
Babylon (T), Suffolk Co.
West Babylon, New York

into receiving waters known as:

Groundwater

in accordance with the effluent limitations, monitoring requirements and other conditions set forth in this permit.

This permit and the authorization to discharge shall expire on midnight of the expiration date shown above and the permittee shall not discharge after the expiration date unless this permit has been renewed, or written authorization is given by the Department. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information, forms, and fees as are required by the Department of Environmental Conservation no later than 180 days prior to the expiration date.

By Authority of **George K. Hansen, P.E., Chief, PDES Permit Section**
Designated Representative of Commissioner of the
Department of Environmental Conservation

AUG 26 1980
Date

George K. Hansen
Signature

RECEIVED
SEP 29 1980
S.C. DEPT. OF
HEALTH SERVICES

REFERENCE NO. 7

COUNTY OF SUFFOLK

Appendix 1.1-6
p. 1 of 28

DEPARTMENT OF HEALTH SERVICES

NOTIFICATION OF UNSATISFACTORY INDUSTRIAL WASTE SAMPLING

Date July 25, 1979

NEU Laboratories, Inc.
60 Dale St.
W. Babylon, N.Y. 11704

Gentlemen:

On July 10, 1979 samples of your industrial waste were taken from your discharge into storm drain (s/s bldg.). Upon analysis, the following parameters were found to be unsatisfactory:

1. pH - 8.9
2.
3.
4.
5.
6.
7.
8.
9.
10.

The acceptable limits on each of these parameters, according to New York State Groundwater Standards are as follows:

1. pH - 6.5 - 8.5
2.
3.
4.
5.
6.
7.
8.
9.
10.

You should be aware that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please see that they are corrected as soon as possible. If you have any questions or need any assistance, please do not hesitate to contact this office.

Stephen A. Costa

Stephen A. Costa, P.E.
Industrial Waste and Hazardous
Materials Control Section

(GW)

COUNTY OF SUFFOLK

p 2 of 28

DEPARTMENT OF HEALTH SERVICES

NOTIFICATION OF UNSATISFACTORY INDUSTRIAL WASTE SAMPLING

Date Oct. 11, 1979

NTU Laboratories, Inc.
60 Dale Street
W. Babylon, N.Y. 11704

Gentlemen:

On Sept. 20, 1979 samples of your industrial waste were taken from your overflowing pool SPA see attached diagram. Upon analysis, the following parameters were found to be unsatisfactory:

1. pH - 3.6	6.
2. Copper - 32 mg/l	7.
3. Iron - 28 mg/l	8.
4. Cadmium - .07 mg/l	9.
5.	10.

The acceptable limits on each of these parameters, according to New York State Groundwater Standards are as follows:

1. pH - 6.5 - 8.5	6.
2. Copper - 1 mg/l	7.
3. Iron - .6 mg/l	8.
4. Cadmium - .06 mg/l	9.
5.	10.

You should be aware that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please see that they are corrected as soon as possible. If you have any questions or need any assistance, please do not hesitate to contact this office.

Stephen A. Costa

Stephen A. Costa, P.E.
Industrial Waste and Hazardous
Materials Control Section

(GW)

COUNTY OF SUFFOLK

p. 3 of 28

DEPARTMENT OF HEALTH SERVICES

NOTIFICATION OF UNSATISFACTORY INDUSTRIAL WASTE SAMPLING

Date Oct. 11, 1979

ITU Laboratories, Inc.
60 Dale Street
W. Babylon, N.Y. 11704

Gentlemen:

On Sept. 25,1979 samples of your industrial waste were taken from your SPA - see attached diagram. Upon analysis, the following parameters were found to be unsatisfactory:

1. pH - 4.5
2. Fluoride - 3.2 mg/l
3. Copper - 13.7 mg/l
4. Iron - 13 mg/l
5.
6.
7.
8.
9.
10.

The acceptable limits on each of these parameters, according to New York State Groundwater Standards are as follows:

1. pH - 6.5 - 8.5
2. Fluoride - 3 mg/l
3. Copper - 1 mg/l
4. Iron - .6 mg/l
5.
6.
7.
8.
9.
10.

You should be aware that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please see that they are corrected as soon as possible. If you have any questions or need any assistance, please do not hesitate to contact this office.

Stephen A. Costa

Stephen A. Costa, P.E.
Industrial Waste and Hazardous
Materials Control Section

(GW)

65 JETSON LANE • HAUPPAUGE, NEW YORK 11787 • (516) 234-2622

COUNTY OF SUFFOLK

p. 4628

DEPARTMENT OF HEALTH SERVICES

NOTIFICATION OF UNSATISFACTORY INDUSTRIAL WASTE SAMPLING

Date Oct. 11, 1979

:MU Laboratories, Inc.
60 Dale Street
W. Babylon, N.Y. 11704

Gentlemen:

On Sept.25,1979 samples of your industrial waste were taken from your storm drain 2 - see attached diagram . Upon analysis, the following parameters were found to be unsatisfactory:

1. pH - 4.3
2. Copper - 9.2 mg/l
3. Iron - 2.1 mg/l
4.
5.
6.
7.
8.
9.
10.

The acceptable limits on each of these parameters, according to New York State Groundwater Standards are as follows:

1. pH - 6.5 - 8.5
2. Copper - 1 mg/l
3. Iron - .6 mg/l
4.
5.
6.
7.
8.
9.
10.

You should be aware that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please see that they are corrected as soon as possible. If you have any questions or need any assistance, please do not hesitate to contact this office.

Stephen A. Costa

Stephen A. Costa, P.E.
Industrial Waste and Hazardous
Materials Control Section

(GW)

65 JETSON LANE HAUPPAUGE, NEW YORK 11787 (516) 234-2622

COUNTY OF SUFFOLK

DEPARTMENT OF HEALTH SERVICES

NOTIFICATION OF UNSATISFACTORY INDUSTRIAL WASTE SAMPLING

Date Oct. 11, 1979

NTU Laboratories, Inc.
60 Dale Street
W. Babylon, N.Y. 11704

Gentlemen:

On Sept. 25, 1979 samples of your industrial waste were taken from your storm drain #3 - see attached diagram. Upon analysis, the following parameters were found to be unsatisfactory:

1. Cadmium - .07 mg/l	6.
2.	7.
3.	8.
4.	9.
5.	10.

The acceptable limits on each of these parameters, according to New York State Groundwater Standards are as follows:

1. Cadmium - .02 mg/l	6.
2.	7.
3.	8.
4.	9.
5.	10.

You should be aware that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please see that they are corrected as soon as possible. If you have any questions or need any assistance, please do not hesitate to contact this office.

Stephen A. Costa

Stephen A. Costa, P.E.
Industrial Waste and Hazardous
Materials Control Section

(GW)

p.6 of 21

COUNTY OF SUFFOLK

DEPARTMENT OF HEALTH SERVICES

NOTIFICATION OF UNSATISFACTORY INDUSTRIAL WASTE SAMPLING

Date Oct. 11, 1979

NTU Laboratories, Inc.
60 Dale Street
W. Babylon, N.Y. 11704

Gentlemen:

On Oct. 2,1979 samples of your industrial waste were taken from your SPA - see attached diagram. Upon analysis, the following parameters were found to be unsatisfactory:

1. pH - 3.2
2. Dissolved Solids - 3,983 mg/l
3. Copper - 55 mg/l
4. Iron - 10.6 mg/l
5. Lead - 4.6 mg/l
6.
7.
8.
9.
10.

The acceptable limits on each of these parameters, according to New York State Groundwater Standards are as follows:

1. pH - 6.5 - 8.5
2. Dissolved Solids - 1,000 mg/l
3. Copper - 1 mg/l
4. Iron - .6 mg/l
5. Lead - .02 mg/l
6.
7.
8.
9.
10.

You should be aware that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please see that they are corrected as soon as possible. If you have any questions or need any assistance, please do not hesitate to contact this office.

Stephen A. Costa

Stephen A. Costa, P.E.
Industrial Waste and Hazardous
Materials Control Section

(GW)

COUNTY OF SUFFOLK

P.7828

DEPARTMENT OF HEALTH SERVICES

NOTIFICATION OF UNSATISFACTORY INDUSTRIAL WASTE SAMPLING

Date Oct. 11, 1979

NTU Laboratories, Inc.
60 Dale Street
W. Babylon, N.Y. 11704

Gentlemen:

On Oct. 2, 1979 samples of your industrial waste were taken from your SD #7 - see attached diagram. Upon analysis, the following parameters were found to be unsatisfactory:

1.	Cadmium - .04 mg/l	6.	
2.	Silver - .36 mg/l	7.	
3.		8.	
4.		9.	
5.		10.	

The acceptable limits on each of these parameters, according to New York State Groundwater Standards are as follows:

1.	Cadmium - .02 mg/l	6.	
2.	Silver - .1 mg/l	7.	
3.		8.	
4.		9.	
5.		10.	

You should be aware that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please see that they are corrected as soon as possible. If you have any questions or need any assistance, please do not hesitate to contact this office.

Stephen A. Costa

Stephen A. Costa, P.E.
Industrial Waste and Hazardous
Materials Control Section

(GW)

COUNTY OF SUFFOLK

DEPARTMENT OF HEALTH SERVICES

NOTIFICATION OF UNSATISFACTORY INDUSTRIAL WASTE SAMPLING

Date Nov. 30, 1979

NTU Laboratories, Inc.
60 Dale St.
W. Babylon, N.Y. 11704

Gentlemen:

On 11/20/79 samples of your industrial waste were taken from your discharge point to S.P.A. . Upon analysis, the following parameters were found to be unsatisfactory:

1. Copper - 3.8 mg/l	6.
2. Iron - 2.3 mg/l	7.
3. Lead - 0.2 mg/l	8.
4.	9.
5.	10.

The acceptable limits on each of these parameters, according to New York State Groundwater Standards are as follows:

1. Copper - 1 mg/l	6.
2. Iron - .6 mg/l	7.
3. Lead - .05	8.
4.	9.
5.	10.

You should be aware that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please see that they are corrected as soon as possible. If you have any questions or need any assistance, please do not hesitate to contact this office.

Stephen A. Costa, P.E.
Industrial Waste and Hazardous
Materials Control Section

(GW)

FIELD

FIELD NO. [illegible]

DELIVERY Carson-Fiber
NAME, NOT INITIALS

DATE COL. 11/20/79

TIME COL. 9:45 am

LABORATORY

LAB NO. 11-79 - 239 P.9828

TYPE SAMPLE Fluid.

DATE REC'VD. 11/20/79

TIME REC'VD. 12:00

DATE COMPLETED 11/21/79

SUFFOLK COUNTY HEALTH SERVICES LABORATORY
CHEMICAL EXAMINATION OF WATER, SEWAGE, INDUSTRIAL WASTE

NAME OR FIRM N.Y.U. Labs

ADDRESS OR LOCATION 60 Dale St. W.B.

POINT OF COLLECTION Point Discharge into S.P.A.

REMARKS/INSTRUCTIONS Heavy discharge at time of collection

	TEST	RESULT		TEST	RESULT mg./liter		TEST	RESULT mg./liter
	CONDUCT	umho		NITRATE-N		✓	COPPER	3.4 1.0
✓	pH	7.8		NITRITE-N		✓	IRON	2.3 .6
	TEST	RESULT m.g./liter		AMMONIA-N			MANGANESE	
	ph. ALKALINITY			TKN		✓	CHROMIUM	<.02
	T. ALKALINITY			O-PO_4-P			NICKEL	
	CHLORIDE					✓	ZINC	<0.1
	FLUORIDE						MAGNESIUM	
	CYANIDE			TOT. SOLIDS			CALCIUM	
				SUS. SOLIDS		✓	LEAD	0.2 .05
	SULFATE			DISS. SOLIDS		✓	CADMIUM	<.02
	MBAS					✓	SILVER	.02
✓	C.O.D.	3.1×10^1					SODIUM	
	T.O.C.						POTASSIUM	
							BARIUM	
				FIELD D.O.				
				FIELD TEMP				
				FIELD pH				
				FIELD COND.	umho			

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COUNTY OF SUFFOLK

DEPARTMENT OF HEALTH SERVICES

NOTIFICATION OF UNSATISFACTORY INDUSTRIAL WASTE SAMPLING

Date ~~12/10/79~~

NTU Laboratories, Inc.
60 Dale Street
W. Babylon, New York
11704

Gentlemen:

On 9/25/79 samples of your industrial waste were taken from your ~~sanitary septic receiving Ind. waste~~. Upon analysis, the following parameters were found to be unsatisfactory:

1. pH - 4.5	6.
2. Fluoride - 3.2 mg/liter	7.
3. Copper - 13.7 mg/liter	8.
4. Iron - 13 mg/liter	9.
5.	10.

The acceptable limits on each of these parameters, according to New York State Groundwater Standards are as follows:

1. pH range - 6.5-8.5	6.
2. Fluoride - 1.0 mg/liter	7.
3. Copper -13.7 mg/liter	8.
4. Iron - .6 mg/liter	9.
5.	10.

You should be aware that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please see that they are corrected as soon as possible. If you have any questions or need any assistance, please do not hesitate to contact this office.

Stephen A. Costa

Stephen A. Costa, P.E.
Industrial Waste and Hazardous
Materials Control Section

(GW)

FIELD

204

BY Olsen
NAME, NOT INITIALS

COL. 09-25-79

COL. 10:50AM

LABORATORY

LAB NO. C-F-3511 pH 628

TYPE SAMPLE Ind.

DATE REC'VD. 9/25

TIME REC'VD. NOON

DATE COMPLETED 9/26 VQ

Nc. F-?

SUFFOLK COUNTY HEALTH SERVICES LABORATORY
CHEMICAL EXAMINATION OF WATER, SEWAGE, INDUSTRIAL WASTE

MBAS 10122

NAME OR FIRM NJU Laboratories

ADDRESS OR LOCATION 60 Dale St, West Babylon

POINT OF COLLECTION Sanitary Pool #A, being used as an industrial pool if possible

REMARKS/INSTRUCTIONS

TEST	RESULT		TEST	RESULT mg./liter		TEST	RESULT mg./liter
CONDUCT	umho	✓	NITRATE-N	0.2	✓	COPPER 1.0	13.7
✓ pH 6.5-8.5	4.5	✓	NITRITE-N	.007	✓	IRON .6	13.
TEST	RESULT mg./liter	✓	AMMONIA-N	12.		MANGANESE	
ph. ALKALINITY			TKN		✓	CHROMIUM	0.02
T. ALKALINITY			$O\text{-}PO_4\text{-}P$		✓	NICKEL	0.5
✓ CHLORIDE	65				✓	ZINC	<0.1
✓ FLUORIDE 3.0	3.2					MAGNESIUM	
CYANIDE		✓	TOT. SOLIDS	330.		CALCIUM	
		✓	SUS. SOLIDS	26.	✓	LEAD	<0.2
SULFATE		✓	DISS. SOLIDS	304.	✓	CADMIUM	<0.02
✓ MBAS	.04				✓	SILVER	<0.02
✓ C.O.D.	9.X10'					SODIUM	
T.O.C.						POTASSIUM	
						BARIUM	
			FIELD D.O.				
			FIELD TEMP				
			FIELD pH				
			FIELD COND.	umho			

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COUNTY OF SUFFOLK

P. 12828

DEPARTMENT OF HEALTH SERVICES

NOTIFICATION OF UNSATISFACTORY INDUSTRIAL WASTE SAMPLING

Date Dec. 20, 1979

NTU Laboratories, Inc.
50 Dale St.
W. Babylon, N.Y. 11704

Gentlemen:

On 12/11/79 samples of your industrial waste were taken from your storm drain #2 (see diagram). Upon analysis, the following parameters were found to be unsatisfactory:

1. Copper - 6.9 mg/l	6.
2.	7.
3.	8.
4.	9.
5.	10.

The acceptable limits on each of these parameters, according to New York State Groundwater Standards are as follows:

1. Copper - 1 mg/l	6.
2.	7.
3.	8.
4.	9.
5.	10.

You should be aware that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please see that they are corrected as soon as possible. If you have any questions or need any assistance, please do not hesitate to contact this office.

Stephen A. Costa, P.E.
Industrial Waste and Hazardous
Materials Control Section

(GW)

FIELD

LABORATORY

LAB NO. 12-79-110 P. 1305 28

FIELD NO. 203

COL. BY Felice, J.P. (NAME, NOT INITIALS)

Received from: Suffolk Co. Dept. of Health

TYPE SAMPLE Ind.

DATE REC'VD. 12/11

TIME REC'VD. NOON

DATE COL. 12/11/79

TIME COL. 11:05AM

DATE COMPLETED 12/13 ja except C.-TC

SUFFOLK COUNTY HEALTH SERVICES LABORATORY
CHEMICAL EXAMINATION OF WATER, SEWAGE, INDUSTRIAL WASTE

NAME OR FIRM N.T.V. LABS

ADDRESS OR LOCATION 50 Dale Street, W. Babylon

POINT OF COLLECTION Storm Drain #2 - At the End of the

REMARKS/INSTRUCTIONS Building furthest from Dale St. (Green Stain on Ground leading to this Drain.)

	TEST	RESULT	
	CONDUCT	umho	
✓	pH	8.6	
	TEST	RESULT m.g./liter	
	ph. ALKALINITY		
	T. ALKALINITY		
	CHLORIDE		
	FLUORIDE		
	CYANIDE		
	SULFATE		
	MBAS		
	C.O.D.		
	T.O.C.		

	TEST	RESULT mg./liter
	NITRATE-N	
	NITRITE-N	
	AMMONIA-N	
	TKN	
	O-PO_4-P	
✓	TOT. SOLIDS	167.
✓	SUS. SOLIDS	24.
✓	DISS. SOLIDS	143.
	FIELD D.O.	
	FIELD TEMP	
	FIELD pH	
	FIELD COND.	umho

	TEST	RESULT mg./liter
✓	COPPER 1.0	6.9
✓	IRON	.57
	MANGANESE	
✓	CHROMIUM	.24
✓	NICKEL	<0.1
✓	ZINC	.05
	MAGNESIUM	
	CALCIUM	
✓	LEAD	0.3
✓	CADMIUM	<.02
✓	SILVER	<.02
	SODIUM	
	POTASSIUM	
	BARIUM	
	Hex. Cr.	

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COUNTY OF SUFFOLK

P. 14528

DEPARTMENT OF HEALTH SERVICES

NOTIFICATION OF UNSATISFACTORY INDUSTRIAL WASTE SAMPLING

Date Dec. 20, 1979

NTU Laboratories, Inc.
50 Dale St.
W. Babylon, N.Y. 11704

Gentlemen:

On 12/11/79 samples of your industrial waste were taken from your storm drain #3 (see diagram). Upon analysis, the following parameters were found to be unsatisfactory:

1. Copper - 7.2 mg/l	6.
2.	7.
3.	8.
4.	9.
5.	10.

The acceptable limits on each of these parameters, according to New York State Groundwater Standards are as follows:

1. Copper - 1 mg/l	6.
2.	7.
3.	8.
4.	9.
5.	10.

You should be aware that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please see that they are corrected as soon as possible. If you have any questions or need any assistance, please do not hesitate to contact this office.

Stephen A. Costa, P.E.
Industrial Waste and Hazardous
Materials Control Section

(GW)

65 JETSON LANE • HAUPPAUGE, NEW YORK 11787 • (516) 234-2622

FIELD

LD NO. #202

COL. BY FELICE, J.P.
NAME, NOT INITIALS

DATE COL. 12/11/79

TIME COL. 10:55 AM

LABORATORY

LAB NO. 12-79-109 p.15828

TYPE SAMPLE Ind.

DATE REC'VD. 12/11

TIME REC'VD. NOON

DATE COMPLETED 12/13 JL

SUFFOLK COUNTY HEALTH SERVICES LABORATORY
CHEMICAL EXAMINATION OF WATER, SEWAGE, INDUSTRIAL WASTE

ME OR FIRM N.T.U. LABS

ADDRESS OR LOCATION 50 Dale Street W. Babylon

INT OF COLLECTION Storm Drain #2 #3 - Between Side

REMARKS/INSTRUCTIONS Delivery Does - new Pipe Leading To This Storm Drain - Heavy Flow At This Time From Pipe.

	TEST	RESULT		TEST	RESULT mg. liter		TEST	RESULT mg. liter
	CONDUCT	umho		NITRATE-N		✓	COPPER 1.0	7.2
✓	pH	7.05		NITRITE-N		✓	IRON	.27
	TEST	RESULT m.g. liter		AMMONIA-N			MANGANESE	
	ph. ALKALINITY			TKN		✓	CHROMIUM	<.02
	T. ALKALINITY			$O\text{-}PO_4\text{-}P$		✓	NICKEL	0.1
	CHLORIDE					✓	ZINC	.03
	FLUORIDE						MAGNESIUM	
	CYANIDE		✓	TOT. SOLIDS	299.		CALCIUM	
			✓	SUS. SOLIDS	20.	✓	LEAD	<0.2
	SULFATE		✓	DISS. SOLIDS	279.	✓	CADMIUM	<.02
	MBAS					✓	SILVER	<.02
	C.O.D.						SODIUM	
	T.O.C.						POTASSIUM	
							BARIUM	
				FIELD D.O.				
				FIELD TEMP				
				FIELD pH				
				FIELD COND.	umho			

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COUNTY OF SUFFOLK

Received from:
Suffolk Co. Dept. of Health

DEPARTMENT OF HEALTH SERVICES

NOTIFICATION OF UNSATISFACTORY INDUSTRIAL WASTE SAMPLING

Date Dec. 20, 1979

NTU Laboratories, Inc.
50 Dale St.
W. Babylon, N.Y. 11704

Gentlemen:

On 12/11/79 samples of your industrial waste were taken from your storm drain #7 (see diagram). Upon analysis, the following parameters were found to be unsatisfactory:

1. Cadmium - .07 mg/l
2. Silver - 1.1 mg/l
3.
4.
5.
6.
7.
8.
9.
10.

The acceptable limits on each of these parameters, according to New York State Groundwater Standards are as follows:

1. Cadmium - .02 mg/l
2. Silver - .1 mg/l
3.
4.
5.
6.
7.
8.
9.
10.

You should be aware that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please see that they are corrected as soon as possible. If you have any questions or need any assistance, please do not hesitate to contact this office.

Stephen A. Costa

Stephen A. Costa, P.E.
Industrial Waste and Hazardous
Materials Control Section

(GW)

65 JETSON LANE • HAUPPAUGE, NEW YORK 11787 • (516) 234-2622

FIELD

LD NO. #201

COL BY Felice, J.P.
NAME, NOT INITIALS

DATE COL. 12/11/79

IME COL. 10:45 am

LABORATORY

LAB NO. 12-79-108 1178

TYPE SAMPLE Ind.

DATE REC'VD. 12/11

TIME REC'VD. NOON

DATE COMPLETED 12/13 JK

SUFFOLK COUNTY HEALTH SERVICES LABORATORY
CHEMICAL EXAMINATION OF WATER, SEWAGE, INDUSTRIAL WASTE

ME OR FIRM N. T. U. LABS

ADDRESS OR LOCATION 50 Dale St. West BABYLON

INT OF COLLECTION Storm Drain #17 Nearest Dale St. near

EMARKS/INSTRUCTIONS Side Entrance Door - (Slight Flow from inlet Pipe) at time of Collection).

TEST	RESULT		TEST	RESULT mg. liter		TEST	RESULT mg. liter
CONDUCT	umho		NITRATE-N		✓	COPPER	.07
✓ pH	6.9		NITRITE-N		✓	IRON	.37
TEST	RESULT m.g. liter		AMMONIA-N			MANGANESE	
ph. ALKALINITY			TKN		✓	CHROMIUM	<.02
T. ALKALINITY			O-PO_4-P		✓	NICKEL	<0.1
CHLORIDE					✓	ZINC	.09
FLUORIDE						MAGNESIUM	
CYANIDE		✓	TOT. SOLIDS	101.		CALCIUM	
		✓	SUS. SOLIDS	13.	✓	LEAD	<0.2
SULFATE		✓	DISS. SOLIDS	88.	✓	CADMIUM .02	.07
MBAS					✓	SILVER .1	(1.1)
C.O.D.						SODIUM	
T.O.C.						POTASSIUM	
						BARIUM	
			FIELD D.O.				
			FIELD TEMP				
			FIELD pH				
			FIELD COND.	umho			

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COUNTY OF SUFFOLK

DEPARTMENT OF HEALTH SERVICES

NOTIFICATION OF UNSATISFACTORY INDUSTRIAL WASTE SAMPLING

Date Feb. 5, 1980

NTU Laboratories, Inc.
50 Dale St.
W. Babylon, N.Y. 11704

Gentlemen:

On Dec. 11, 1979 samples of your industrial waste were taken from your storm drain at end of building* . Upon analysis, the following parameters were found to be unsatisfactory:

1. Hexavalent Chromium - .15 mg/l
2.
3.
4.
5.
6.
7.
8.
9.
10.

The acceptable limits on each of these parameters, according to New York State Groundwater Standards are as follows:

1. Hexavalent Chromium - .1 mg/l.
2.
3.
4.
5.
6.
7.
8.
9.
10.

*furthest from Dale St.

You should be aware that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please see that they are corrected as soon as possible. If you have any questions or need any assistance, please do not hesitate to contact this office.

Stephen A. Costa, P.E.
Industrial Waste and Hazardous
Materials Control Section

(GW)

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COUNTY OF SUFFOLK

DEPARTMENT OF HEALTH SERVICES

NOTICE OF VIOLATION: N.Y.S. ENVIRONMENTAL CONSERVATION LAW

N.T.U. Circuits Inc.
60 Dale Street
West Babylon, New York 11704

Date July 6, 1981
SPDES NO. NY0108260
Lab No. 6/81-74
Field No. 6 DO 6-10

entlemen:

On June 10, 1981 samples of industrial waste were taken from your storm drain receiving process water, southside of building

Upon analysis, the following parameters were found in concentrations above the maximum allowed in your SPDES permit or in groundwater effluent tandards:

1. Cadmium - 0.03 mg/L
2. 6.
3. 7.
4. 8.
4. 9.
10.

Please be advised that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please be further advised that the discharge of any water from an industrial process to the groundwater of Suffolk County without having first obtained a State Pollutant Discharge Elimination System (SPDES) permit for that discharge is also a violation of the N.Y.S.E.C.L. and S.C. Sanitary Code, Art. 12.

f you do not already possess a valid SPDES permit for the above discharge, hen you should apply immediately, through this office, for said permit.

Since the above noted violations may subject you to legal action, it is expected that these violations cease immediately. A reinspection in the near future will determine your compliance in this matter.

Very truly yours,

(SEE REVERSE SIDE FOR STANDARDS)

John H. Finkenberg
. Sanitarian
Environmental Pollution Control
JHF/cc

Central Islip, N. Y. 11722
ASTATION LANE Box G
(516) 234-2622

FIELD

FIELD NO. GDO G-10

BY DAVID OBRIEN
NAME, NOT INITIALS

DATE COL. LO SUNEKI

TIME COL. 1040 AM

LABORATORY

LAB NO. 6/81- 748-204-228

TYPE SAMPLE INJ

DATE REC'VD. 6/10/81

TIME REC'VD. ~ 1117

DATE COMPLETED 6/22/81 F.F

SUFFOLK COUNTY HEALTH SERVICES LABORATORY
CHEMICAL EXAMINATION OF WATER, SEWAGE, INDUSTRIAL WASTE

NAME OR FIRM NTC

ADDRESS OR LOCATION DALE ST. FARMINGDALE (DUCK TOWN)

POINT OF COLLECTION SD receiving process waters, Sanitaries & BID.

REMARKS/INSTRUCTIONS

	TEST	RESULT		TEST	RESULT mg./liter		TEST	RESULT mg./liter
	CONDUCT	umho		NITRATE-N		X	COPPER	8.0
	pH			NITRITE			IRON	
	TEST	RESULT m.g./liter		AMMONIA-N			MANGANESE	
	ph. ALKALINITY			TKN		X	CHROMIUM	.04
	T. ALKALINITY			O-PO_4-P		X	NICKEL	<.1
	CHLORIDE					X	ZINC	<.1
	FLUORIDE						MAGNESIUM	
	CYANIDE			TOT. SOLIDS			CALCIUM	
				SUS. SOLIDS		X	LEAD	.4
	SULFATE			DISS. SOLIDS		X	CADMIUM	.03
	MBAS					X	SILVER	<.02
	C.O.D.						SODIUM	
	T.O.C.						POTASSIUM	
							BARIUM	
				FIELD D.O.				
				FIELD TEMP				
				FIELD pH	7			
				FIELD COND.	umho			

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COUNTY OF SUFFOLK

DEPARTMENT OF HEALTH SERVICES

NOTICE OF VIOLATION: N.Y.S. ENVIRONMENTAL CONSERVATION LAW

N.T.U. Circuits Inc.
60 Dale Street
West Babylon, NY 11704

Date July 17, 1981
SPDES NO NY0108260
Lab No. 7-81-18
Field No. 1 DO 7-1

Gentlemen:

July 1, 1981 samples of industrial waste were taken from your sani. pool #1 (pool 60 ft. southwest of N.T.U.)
Based on analysis, the following parameters were found in concentrations above the maximum allowed in your SPDES permit or in groundwater effluent standards:

1. Copper - 440.0 mg/L
2. Iron - 4.4 mg/L
3. Cadmium 0.06 mg/L
4. Lead - 1.2 mg/L
5. pH (field) - 11
6.
7.
8.
9.
10.

Please be advised that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please be further advised that the discharge of any water from an industrial process to the groundwater of Suffolk County without having first obtained a State Pollutant Discharge Elimination System (SPDES) permit for that discharge is also a violation of the N.Y.S.E.C.L. and S.C. Sanitary Code, Art. 12.

If you do not already possess a valid SPDES permit for the above discharge, then you should apply immediately, through this office, for said permit.

Since the above noted violations may subject you to legal action, it is expected that these violations cease immediately. A reinspection in the near future will determine your compliance in this matter.

Very truly yours,

(SEE REVERSE SIDE FOR STANDARDS)

John H. Finkenberg
Sr. Sanitarian
Environmental Pollution Control
JHF/cc

FIELD

FIELD NO. 1 DO7-1

BY DAVID GRAHAM R. OLSEN
NAME, NOT INITIALS

DATE COL. 1 JULY 81

TIME COL. 3:40 PM

LABORATORY

LAB NO. 7-81-18

TYPE SAMPLE INDUSTRIAL

DATE REC'VD. 7/1/81

TIME REC'VD. 4:32 PM.

DATE COMPLETED 7/13/81 EW

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SUFFOLK COUNTY HEALTH SERVICES LABORATORY
CHEMICAL EXAMINATION OF WATER, SEWAGE, INDUSTRIAL WASTE

NAME OR FIRM NTH Circuits Inc.

ADDRESS OR LOCATION 60 Dale St. W. Babylon

POINT OF COLLECTION SCNJ POOL #1

REMARKS/INSTRUCTIONS DELIVERED TO SCDHS LAB 4:47 pm 1 JUL 81

TEST	RESULT		TEST	RESULT mg./liter		TEST	RESULT mg./liter
CONDUCT	umho		NITRATE-N		✓	COPPER	4.4X10²
pH			NITRITE		✓	IRON	4.4
TEST	RESULT mg./liter		AMMONIA-N			MANGANESE	
ph. ALKALINITY			TKN		✓	CHROMIUM	.06
T. ALKALINITY			O-PO_4-P		✓	NICKEL	.2
CHLORIDE					✓	ZINC	1.3
FLUORIDE						MAGNESIUM	
CYANIDE			TOT. SOLIDS			CALCIUM	
			SUS. SOLIDS		✓	LEAD	1.2 ow
SULFATE			DISS. SOLIDS		✓	CADMIUM	.06
MBAS					✓	SILVER	<.02
C.O.D.						SODIUM	
T.O.C.						POTASSIUM	
						BARIUM	
			FIELD D.O.				
			FIELD TEMP				
			FIELD pH	7pH 11			
			FIELD COND.	umho			

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COUNTY OF SUFFOLK

P-23[illegible]28

DEPARTMENT OF HEALTH SERVICES

NOTICE OF VIOLATION: N.Y.S. ENVIRONMENTAL CONSERVATION LAW

NTU Circuits, INc.
60 Dale Street
west Babylon, New York 11704

Date 12-28-81
SPDES NO. NY 0108260
Lab No. 9-81-337
Field No. 3 DO 9-30

Gentlemen:

On 9-30-81 samples of industrial waste were taken from your SPDES Discharge pool, receiving rinse water. Upon analysis, the following parameters were found in concentrations above the maximum allowed in your SPDES permit or in groundwater effluent standards:

1. Lead - 2.4, mg/L
2.
3.
4.
5.
6.
7.
8.
9.
10.

Please be advised that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please be further advised that the discharge of any water from an industrial process to the groundwater of Suffolk County without having first obtained a State Pollutant Discharge Elimination System (SPDES) permit for that discharge is also a violation of the N.Y.S.E.C.L. and S.C. Sanitary Code, Art. 12.

If you do not already possess a valid SPDES permit for the above discharge, then you should apply immediately, through this office, for said permit.

Since the above noted violations may subject you to legal action, it is expected that these violations cease immediately. A reinspection in the near future will determine your compliance in this matter.

Very truly yours,

(SEE REVERSE SIDE FOR STANDARDS)

John H. Finkenberg
r. Sanitarian
nvironmental Pollution Control
JHF/cc

Central Islip, N. Y. 11722
[illegible] Box G
[illegible] (516) 3[illegible]-[illegible]

FIELD

F LD NO. 3DO930

BY 30 ~~Sept~~ DAVID OBRIEN
NAME, NOT INITIALS

ATE COL. 30 Sept 81

E COL. 11^00 AM.

LABORATORY

LAB NO. 9-81-337 P.24 P8

TYPE SAMPLE 1NO

DATE REC'VD. 9/30 FDU

TIME REC'VD. 12:20PM

DATE COMPLETED 10/6/81

SUFFOLK COUNTY HEALTH SERVICES LABORATORY
CHEMICAL EXAMINATION OF WATER, SEWAGE, INDUSTRIAL WASTE

NAME OR FIRM NTU CIRCUITS

DDRESS OR LOCATION DALE ST, FARMINGDALE

NT OF COLLECTION SPDES Discharge Pool, Receiving Rinse WATER

REMARKS/INSTRUCTIONS

	TEST	RESULT		TEST	RESULT mg. liter		TEST	RESULT mg. liter
	CONDUCT	umho		NITRATE-N		✓	COPPER	[redacted]
	pH			NITRITE			IRON	
	TEST	RESULT m.g. liter		AMMONIA-N			MANGANESE	
	ph. ALKALINITY			TKN		V	CHROMIUM	<.02
	T. ALKALINITY			O-PO_4-P		✓	NICKEL	.2
	CHLORIDE						ZINC	
	FLUORIDE						MAGNESIUM	
	CYANIDE			TOT. SOLIDS			CALCIUM	
				SUS. SOLIDS		V	LEAD	[redacted] 2.4
	SULFATE			DISS. SOLIDS		V	CADMIUM	<.02
	MBAS						SILVER	
	C.O.D.						SODIUM	
	T.O.C.						POTASSIUM	
							BARIUM	
				FIELD D.O.				
				FIELD TEMP				
				FIELD pH	pH 7			
				FIELD COND.	umho			

COUNTY OF SUFFOLK

DEPARTMENT OF HEALTH SERVICES

NOTICE OF VIOLATION: N.Y.S. ENVIRONMENTAL CONSERVATION LAW

Date 12-28-81
SPDES NO. NY 0108260
Lab No. 11-81-271
Field No. 5 DO 25-11

NTU Circuits Inc.
60 Dale Street
West Babylon, New York 11704

Gentlemen:

On 11-25-81 samples of industrial waste were taken from your SPDES discharge pool, southside of NTU, actively receiving process waste. Upon analysis, the following parameters were found in concentrations above the maximum allowed in your SPDES permit or in groundwater effluent standards:

1. Copper - 9.0 mg/L
2. Lead - 1.3 mg/L
3. pH - 3
4.
5.
6.
7.
8.
9.
10.

Please be advised that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please be further advised that the discharge of any water from an industrial process to the groundwater of Suffolk County without having first obtained a State Pollutant Discharge Elimination System (SPDES) permit for that discharge is also a violation of the N.Y.S.E.C.L. and S.C. Sanitary Code, Art. 12.

If you do not already possess a valid SPDES permit for the above discharge, then you should apply immediately, through this office, for said permit.

Since the above noted violations may subject you to legal action, it is expected that these violations cease immediately. A reinspection in the near future will determine your compliance in this matter.

Very truly yours,

(SEE REVERSE SIDE FOR STANDARDS)

John H. Finkenberg
Sr. Sanitarian
Environmental Pollution Control
JHF/cc

Central Islip, N. Y. 11722
Box G
(516) 234-2622

FIELD

FIELD NO. [illegible]

COLLECTED BY [illegible]
NAME, NOT INITIALS

DATE COL. 25 NOV. 91

TIME COL. 945

LABORATORY

LAB NO. 11 81 - 91

TYPE SAMPLE IND. p.26 pk

DATE REC'VD. 11/25 [illegible]

TIME REC'VD. 1PM

DATE COMPLETED [illegible]

SUFFOLK COUNTY HEALTH SERVICES LABORATORY
CHEMICAL EXAMINATION OF WATER, SEWAGE, INDUSTRIAL WASTE

NAME OR FIRM [illegible]

ADDRESS OR LOCATION [illegible]

POINT OF COLLECTION [illegible]

REMARKS/INSTRUCTIONS [illegible]

	TEST	RESULT		TEST	RESULT mg. liter		TEST	RESULT mg. liter
	CONDUCT	umho		NITRATE-N		✓	COPPER	9.0
	pH			NITRITE			IRON	
	TEST	RESULT m.g. liter		AMMONIA-N			MANGANESE	
	ph. ALKALINITY			TKN		✓	CHROMIUM	<.02
	T. ALKALINITY			O-PO_4-P		✓	NICKEL	<.1
	CHLORIDE					✓	ZINC	.1
	FLUORIDE						MAGNESIUM	
	CYANIDE			TOT. SOLIDS			CALCIUM	.05
				SUS. SOLIDS		✓	LEAD	1.3
	SULFATE			DISS. SOLIDS		✓	CADMIUM	<.02
	MBAS					✓	SILVER	<.02
	C.O.D.						SODIUM	
	T.O.C.						POTASSIUM	
							BARIUM	
				FIELD D.O.				
				FIELD TEMP				
				FIELD pH	pH= 3			
				FIELD COND.	umho			

8204-1

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COUNTY OF SUFFOLK

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DEPARTMENT OF HEALTH SERVICES

NOTICE OF VIOLATION: N.Y.S. ENVIRONMENTAL CONSERVATION LAW

NTU Circuits
60 Dale Street
West Babylon, New York 11704

Date 1-19-82
SPDES NO.
Lab No. 12-81-116
Field No. 1 EJ 12-14

Gentlemen:

On 12-14-81 samples of industrial waste were taken from your storm drain on the south side of the building. Upon analysis, the following parameters were found in concentrations above the maximum allowed in your SPDES permit or in groundwater effluent standards:

1. Copper - 10 mg/L
2. Iron - 1.3 mg/L
3. Lead - 3.0 mg/L
4.
5.
6.
7.
8.
9.
10.

Please be advised that these unsatisfactory conditions constitute violations of the N.Y.S. Environmental Conservation Law. Please be further advised that the discharge of any water from an industrial process to the groundwater of Suffolk County without having first obtained a State Pollutant Discharge Elimination System (SPDES) permit for that discharge is also a violation of the N.Y.S.E.C.L. and S.C. Sanitary Code, Art. 12.

If you do not already possess a valid SPDES permit for the above discharge, then you should apply immediately, through this office, for said permit.

Since the above noted violations may subject you to legal action, it is expected that these violations cease immediately. A reinspection in the near future will determine your compliance in this matter.

Very truly yours,

(SEE REVERSE SIDE FOR STANDARDS)

John H. Finkenberg
Jr. Sanitarian
Environmental Pollution Control
JHF/cc

Central Islip, N. Y. 11722
65 Hauppauge Lane Box G (516) 234-3622

LABORATORY

FIELD NO. LET 12-14

COL. BY JOUVERLOD
NAME, NOT INITIALS

DATE COL. 12-14-81

TIME COL. 12:10 PM

LAB NO. [illegible]

TYPE SAMPLE [illegible]

DATE REC'VD. [illegible]

TIME REC'VD.

DATE COMPLETED [illegible]

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SUFFOLK COUNTY HEALTH SERVICES LABORATORY
CHEMICAL EXAMINATION OF WATER, SEWAGE, INDUSTRIAL WASTE

NAME OR FIRM NTU CIRCUITS

ADDRESS OR LOCATION 60 DALE ST., W. BABYLON

POINT OF COLLECTION STORM DRAIN # 3

REMARKS/INSTRUCTIONS (NOT FIELD PRESERVED - FIELD PH=7)

TEST	RESULT		TEST	RESULT mg./liter		TEST	RESULT mg./liter
CONDUCT	umho		NITRATE-N		✓	COPPER	10 1.0
pH			NITRITE		✓	IRON	1.3 .6
TEST	RESULT m.g./liter		AMMONIA-N		✓	MANGANESE	
ph. ALKALINITY			TKN		✓	CHROMIUM	<.02
T. ALKALINITY			$0\text{-}PO_4\text{-}P$		✓	NICKEL	.1
CHLORIDE					✓	ZINC	.1
FLUORIDE						MAGNESIUM	
CYANIDE			TOT. SOLIDS			CALCIUM	
			SUS. SOLIDS		✓	LEAD	3. .03
SULFATE			DISS. SOLIDS		✓	CADMIUM	<.02
MBAS	.06				✓	SILVER.	<.02
C.O.D.						SODIUM	
T.O.C.						POTASSIUM	
						BARIUM	
			FIELD D.O.				
			FIELD TEMP				
			FIELD pH				
			FIELD COND.	umho			

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38-112

REFERENCE NO. 8

p 4 of 18

SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF SUFFOLK

- -x

STATE OF NEW YORK,

Plaintiff,

- against -

NTU LABORATORIES, INC., d/b/a NTU CIRCUITS, INC. and TIMOTHY WU,

Defendants.

- -

STIPULATION OF DISCONTINUANCE

Index No. 81-16855

WHEREAS, the plaintiff has brought this proceeding against the defendants (hereinafter "NTU") for injunctive and monetary relief due to the alleged discharge of various heavy metals and chemical compounds from a factory used for the production of printed circuit boards for electronic equipment, and

WHEREAS, the parties, by their various authorized representatives, have met and agreed on a plan of settlement of the various disputed and differences between them, the effect of which is to make the continuation of this proceeding unnecessary.

IT IS THEREFORE, hereby stipulated and agreed, by and between the parties hereto and by their attorneys, that this proceeding is discontinued upon the following terms and conditions:

1. NTU CIRCUITS, INC. will immediately empty the sanitary pool adjacent to its factory at 60 Dale Street in the Town of Babylon, County of Suffolk, State of New York, designated

as SP-A in Figure 1 attached hereto. The existing sludge at the bottom of the SP-A pool will be removed, a sulfide or lime slurry will be deposited in the bottom of the pool and mixed with the existing sand. The pool will be filled in with clean sand and the top of the pool will be paved over so as to make an impervious surface, not allowing rain to enter the pool area. The pipes leading to the pool will be grouted or made unusable. A new sanitary pool will be constructed at a location deemed acceptable (in writing) by the Suffolk County Department of Health and will henceforth hold and dispose of all the sludge generated by the facility in a manner acceptable to the said Suffolk County Department of Health.

2. For the sanitary drainage pools No. 2 and No. 3 located in Figure 1 attached, NTU will do the following at the time of completion of its treatment facility (which is being constructed in accordance with current SPDES permit schedule).

a. Pump the liquid waste from the pool through the treatment facility;

b. slurry bottom of the pool with a sulfide or lime slurry to precipitate any residual metal;

c. fill in the pool with clean sand and pave over so as to make the top surface impermeable to rain;

d. the existing pipes will be concreted or grouted so as to make them unusable.

3. The storm draining pools indicated as SD-7,

SD-8 and SD-N1 (the latter being the pool closest to plating room) at the time of completion of the NTU treatment facility will be:

a. emptied of liquid waste and that liquid waste passed through the treatment system;

b. One foot of bottom sandy material will be removed and disposed of in an environmentally acceptable manner;

c. bottom material will be replaced with clean sand (one to two feet in depth).

4. The NTU sanitary pool that receives waste from the water closet located in the northeast corner of the building will be exposed for sampling by the Suffolk County Department of Health. In the event such sampling reveals contamination, such pool will be treated as hereinbefore described for pools SD-7, SD-8, and SD-N1.

5. NTU agrees to obtain all necessary consents from its landlord which may be required in connection with the remedial measures hereinbefore set forth.

6. NTU hereby agrees to notify the Environmental Protection Bureau of the office of the Attorney General, State of New York, in writing, at such time as it either vacates the premises or in any other way alienates its interest, as tenant, therein, either by assignment of lease or otherwise.

7. All pipes leading to and from the pools to be

terminated will be filled with grout or concrete by NTU.

8. NTU may install new storm and sanitary pools which are consistent with its needs and with the applicable regulations of the DEC, the Suffolk County Department of Health and any other appropriate agency. NTU agrees to obtain and exhibit to the Attorney General all licenses or permits which may be required in connection with such installation.

9. NTU will pay to the Attorney General the sum of $2,500.00, the amount agreed to in the consent order entered into on March 28, 1980.

10. This proceeding is terminated without prejudice to either party.

11. Each party is to bear its own costs and disbursements with regard to this proceeding.

Dated: Mineola, New York
April 30, 1982

ROBERT ABRAMS
Attorney General of the State
of New York
Attorney for Plaintiff
By:

CURTIS H. MOORE, JR.
Assistant Attorney General

HOWARD P. FRITZ
15 Roslyn Road
Mineola, New York 11501
Attorney for Defendants
NTU LABORATORIES, INC.
By:
TIMOTHY WU, President

REFERENCE NO. 9

1 9 of 19

FANNING, PHILLIPS & MOLNAR
Consulting Engineers
80 SKYLINE DRIVE
PLAINVIEW, NEW YORK 11803

RICHARD FANNING, P E
KEVIN J PHILLIPS, P E, Ph D
GARY A MOLNAR, P E

516 938-2200
212 767-3337

February 21, 1984

Robert Abrams, Esq.
Attorney General
State of New York
Two World Trade Center
New York, New York 10047

Dear Mr. Abrams:

This letter is to notify you that NTU Circuits, Inc. has complied with their Stipulation of Discontinuance (Index No. 81-16855), dated April 30, 1982. All of the items specified in the Stipulation were fully complied with on November 29th, December 1st, 2nd and 3rd of 1983. Enclosed are reports by Fanning, Phillips and Associates (currently Fanning, Phillips & Molnar) and by the Suffolk County Department of Health Services detailing the events that transpired.

If there are any questions, please contact myself or Mr. Timothy Wu of NTU Circuits, Inc.

Thank you again for your time and attention to this matter.

Very truly yours,

Errol S. Kitt

ESK/ks
Enclosures

Errol S. Kitt
Assistant Project Engineer

p.10 of 18

NTU CIRCUITS, INC.
COMPLIANCE TO STIPULATION OF DISCONTINUANCE

This report is in regard to the compliance of NTU Circuits, Inc. to its Stipulation of Discontinuance (Index No. 81-16855) dated April 30, 1982.

On November 29, December 1, 2, and 3 1983 Timothy Wu, President of NTU Circuits, Inc., David Obrig and Joann Johnson, Environmental Health Sanitarians from the Suffolk County Department of Health Services, and Errol Kitt, Assistant Project Engineer from Fanning, Phillips and Molnar (consulting engineers for NTU Circuits) were present to supervise all work done by the contractor, Patterson Chemical Company, a certified waste hauler. It was confirmed that the work was conducted in an environmentally safe manner, and that all of the items in the Stipulation were addressed and correctly complied with. The actual proceedings are described as follows:

1. On November 29, storm drainage pool SD-7, shown in Figure 1 (also see Appendix A), was emptied of its liquid waste contents (5,000 gallons) by Patterson Chemical Company. This wastewater was then transported by Patterson to NTU's new building in North Bay Shore, where it was treated in NTU's industrial wastewater treatment system.
2. On December 1, storm drainage pools SD-8 and SD-N1 (see Figure 1 and Appendix A) were emptied of their liquid waste (1000 gallons) and again this wastewater was removed by Patterson, transported to NTU's new building and treated in its wastewater treatment system.
3. Also on December 1, sanitary pools No. 2 and No. 3, located in Figure 1 attached (also see Appendix A) were emptied of their liquid wastes. The wastewater

was transported to NTU's industrial wastewater treatment system and treated.

4. On December 2, over one foot of bottom sandy material was removed from each storm drainage pool (SD-7, SD-8 and SD-N1) and disposed of by Patterson in an environmentally acceptable manner. This bottom material was then replaced with approximately 1-2 feet of clean sand for each pool mentioned.
5. Also on December 2, both sanitary pools (No. 2 and No. 3) were slurried with lime to precipitate any residual metal. They were also filled in with clean sand and paved over so as to make the top surface impermeable. All of the existing piping for both pools was concreted as to render them unusable.
6. On December 3, all drums containing liquid waste that were on the premises were emptied, removed and transported by Patterson to a Treatment Storage and Disposal Facility (TSDF) to be disposed of in an environmentally safe manner.

Date: December 2, 1983
West Babylon, New York

Errol S. Kitt
Assistant Project Engineer
Fanning, Phillips and Molnar

Signed: Errol S Kitt

Timothy Wu
President, NTU Circuits, Inc.

Signed: _____

PHAOSTRON EAST INC

PARKING LOT

105'

SD-N1

WATER SUPPLY (SCWA)

ACTIVE STORE FRONT (ASF) INC.

TRUCKING CO.

WELDING METALLURGY INC.

52'

NTU CIRCUITS INC

N

SD-A

SD-2

SD-3

SD-7

SD-8

18'

48'

48'

42'

19'

DALE STREET

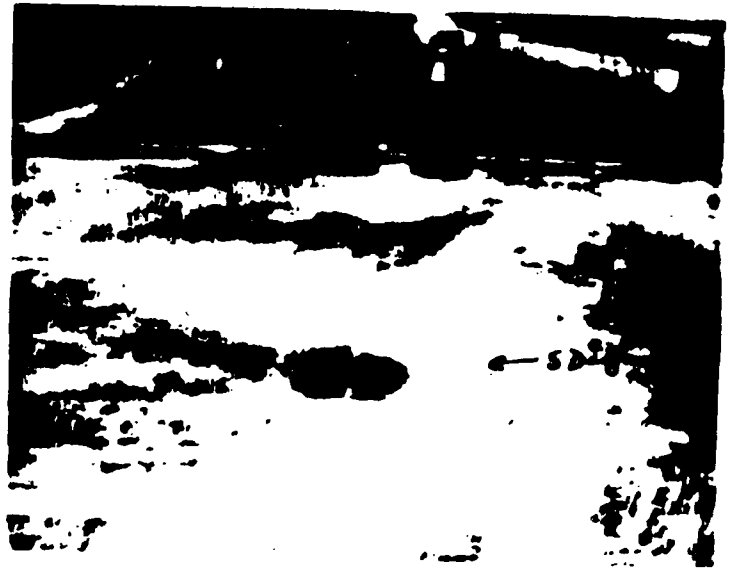
PARKING LOT

GARBAGE TRUCK LOT

SPECTRUM INC.

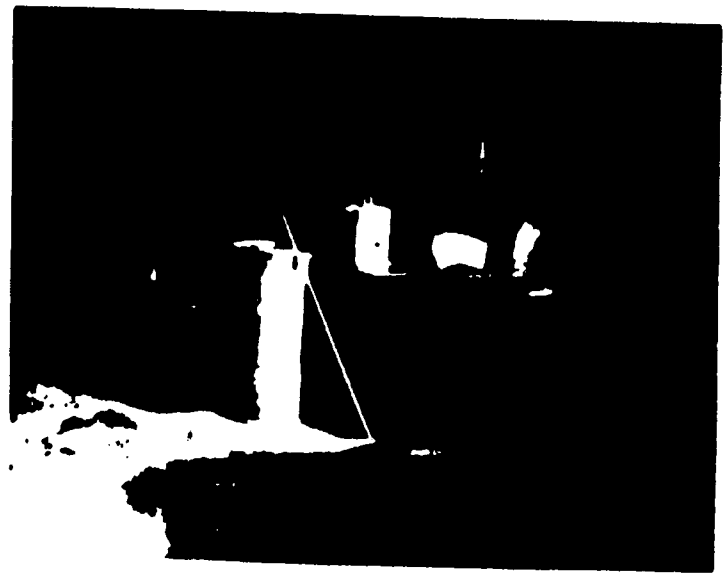
FIGURE 1- SANITARY POOL & STORM DRAIN LOCATIONS

APPENDIX A



P 14 of 18

P 15818



P.16918

P.170 8/8

SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES
INDUSTRIAL WASTE AND HAZARDOUS MATERIALS CONTROL
15 HORSEBLOCK PLACE, FARMINGVILLE, N.Y. 11738
(516) 451-4633

NAME OF FACILITY: NTU LABORATORIES	OWNER/ OFFICER: Timothy Liu	PAGE 1 OF
COMPANY NAME: dba NTU Circuits, Inc.	CONTACT	TEL.
PLANT ADDRESS: 60 Oak St.	VILLAGE: Wyandanch TOWN: Babylon	ZIP: 11735
MAILING ADDRESS		

DATE: 2 Dec. 93 | TIME: 9:15 AM | ORIG | PERIODIC | (RE) | (WASTE) | NO WASTE | NSM | SEWAGE SYSTEM: PUBLIC / PRIVATE

INDUSTRY: Mfg of Printed Circuit Boards

DES OR DES PERMIT? YES NO PERMIT NO. | 360 PERMIT? YES NO PERMIT NO

SCAVENGER: Patterson Chemical TEL.

SCAVENGER APPROVED (YES) NO | PICK UP RECORDS AVAILABLE (YES) NO | RECORDS CONSISTENT WITH EXPECTED WASTE GENERATION YES NO

HEATING SYSTEM - MFG NAME	FUEL TYPE	FIRING RATE
MAIN NAME	WASTE BURNED	RATE

IN STORAGE YES NO	NUMBER STORED INDOORS OUTDOORS	TYPE OF MATERIAL STORED WASTE RAW
STORAGE TANKS YES NO	NUMBER OF TANKS ABOVEGROUND UNDERGROUND	TYPE OF MATERIAL STORED WASTE RAW
EN PROCESS TANKS YES NO	NUMBER OF OPEN PROCESS TANKS	ANY ART. XII VIOLATIONS YES NO

The following information is for the RECORD of NTU Circuits concerning clean up of contaminated steam drying & sanitary tanks as per consent order Index No. 81-16855.

(A) Patterson Chemical arrived at approx. 11:45 AM to finish clean up at the NTU site. (B) SD-8 was inspected and completed clean out approved. (C) SP-A was cleaned & treated with lime and cleaned sand was filled to the top. Piping was concreted & pool plug over. (D) Sanitary drainage pits #2 & #3 were also treated as mentioned in (C). (E) SD-7, SD-8 & SD-11 were also treated in the same manner as (C). Time & Net weight of sand

PERMISSION IS GRANTED BY THIS FACILITY TO THE SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES TO CONDUCT ROUTINE SAMPLING OF CESSPOOLS, STORMDRAINS, AND OTHER DISCHARGE POINTS AT THE FACILITY.

INSPECTION SCHEDULED ON OR AFTER _____. FAILURE TO CORRECT UNSATISFACTORY CONDITIONS BY REINSPECTION DATE MAY RESULT IN A HEARING AND/OR FINE.

SIGN. OF PERSON I.C. REPORT	TITLE	INSPECTOR: JoAnne Johnson

6-155: 9/82 S781

Page TWO

P 18 of 18

SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES
INDUSTRIAL WASTE AND HAZARDOUS MATERIALS CONTROL
15 HORSEBLOCK PLACE, FARMINGVILLE, N Y 11738
(516) 451-4633

NAME OF FACILITY: NTU
OWNER/OFFICER:
PAGE 1 OF
COMPANY NAME:
CONTACT:
TEL.
PLANT ADDRESS: 60 DALE ST
VILLAGE: W. ISLIP
TOWN: BABYLON
MAILING ADDRESS:
ZIP
DATE: 3 Dec 83
TIME: 10 AM
ORIG
PERIODIC (RE)
WASTE
NO WASTE
H&H
SEWAGE SYSTEM: PUBLIC / PRIVATE
INDUSTRY
SIC OR SCES PERMIT? YES NO PERMIT NO
360 PERMIT? YES NO PERMIT NO
SCAVENGER
SCAVENGER APPROVED YES NO
PICK UP RECORDS AVAILABLE YES NO
TEL.
RECORDS CONSISTENT WITH EXPECTED WASTE GENERATION YES NO
HEATING SYSTEM - MFG NAME
FUEL TYPE
FIRING RATE
MFG. NAME
WASTE BURNED
RATE
STORAGE YES NO
NUMBER STORED INDOORS OUTDOORS
TYPE OF MATERIAL STORED WASTE RAW
STORAGE TANKS YES NO
NUMBER OF TANKS ABOVEGROUND UNDERGROUND
TYPE OF MATERIAL STORED WASTE RAW
PROCESS TANKS YES NO
NUMBER OF OPEN PROCESS TANKS
ANY ART. XII VIOLATIONS YES NO

The 55 gallon drums containing toxic & or hazardous wastes were pumped dry & transported to New Jersey for disposal. (± 20 x 55 gallon drums)

PERMISSION IS GRANTED BY THIS FACILITY TO THE SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES TO CONDUCT ROUTINE SAMPLING OF CESSPOOLS, STORMDRAINS, AND OTHER DISCHARGE POINTS AT THE FACILITY.

INSPECTION SCHEDULED ON OR AFTER _____. FAILURE TO CORRECT UNSATISFACTORY CONDITIONS BY REINSPECTION DATE MAY RESULT IN A HEARING AND/OR FINE.

SIGNATURE OF PERSON REPORT
TITLE
INSPECTOR: Jo Anne Johnson

S. 9/82

8/81 TJK

REFERENCE NO. 10

NUS CORPORATION
SUPERFUND DIVISION

PROJECT NOTES

TO:

DATE: 3/27/89

FROM: David Herm

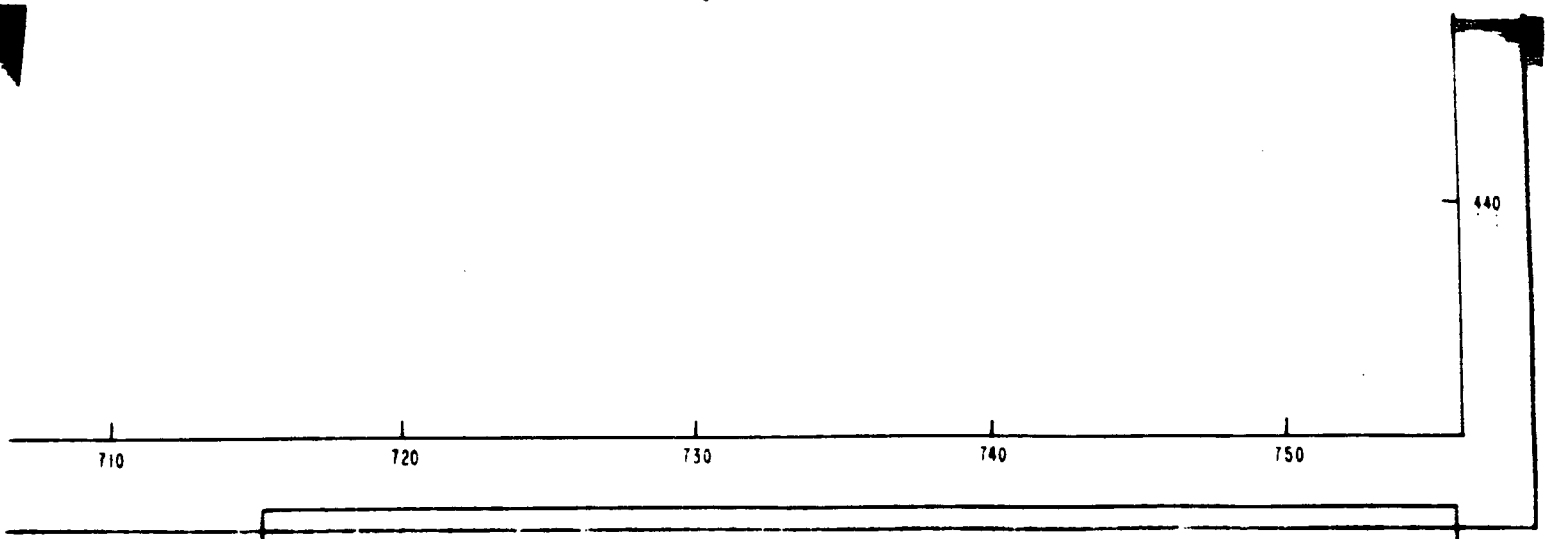
COPIES:

SUBJECT: NTH Circuits

REFERENCE: Reference # 10, Three-mile Quadline Map from NTH Circuits is located in a plastic sleeve at the rear of the report.

NUS 443A 88 1182

REFERENCE NO. 11



SIGNIFICANT HABITAT OVERLAY NO. 1 OF 1

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF FISH AND WILDLIFE
BUREAU OF WILDLIFE

PREPARED FOR: SIGNIFICANT HABITAT UNIT
WILDLIFE RESOURCES CENTER
DELMAR, NEW YORK 12054
(518) 457-5782

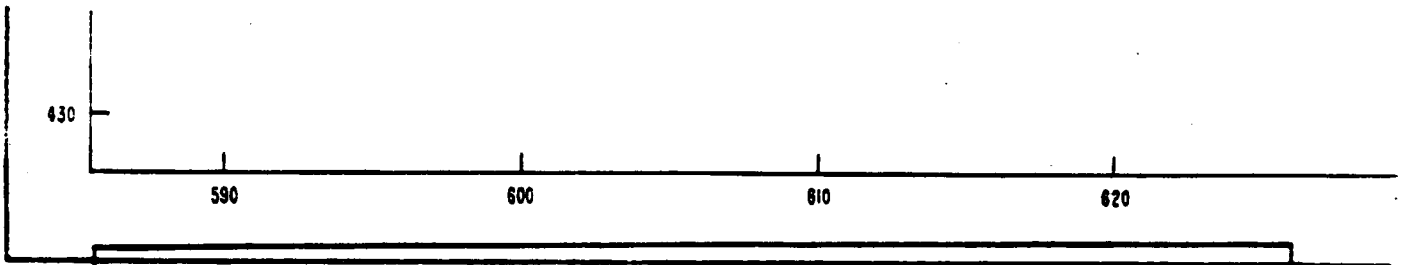
PREPARED BY: HABITAT INVENTORY UNIT

QUAD: NEW YORK

SCALE: 1:250,000

MARCH, 1981

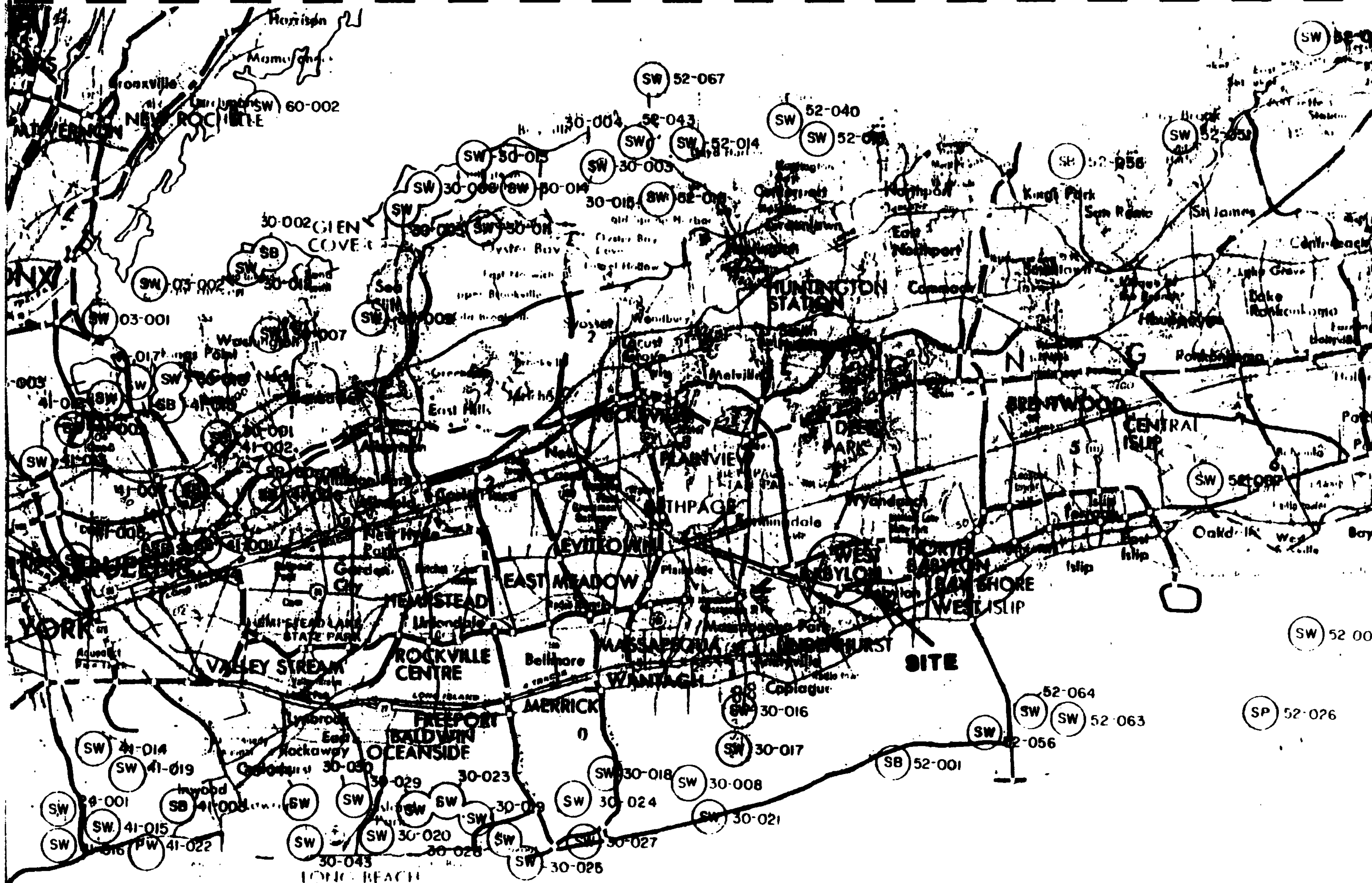
REVISED: 11/81



KEY

- (SW) SIGNIFICANT FOR WILDLIFE
- (SP) SIGNIFICANT FOR PLANTS
- (SB) SIGNIFICANT FOR WILDLIFE AND PLANTS
- (PW) POTENTIALLY SIGNIFICANT FOR WILDLIFE
- (PP) POTENTIALLY SIGNIFICANT FOR PLANTS
- (PB) POTENTIALLY SIGNIFICANT FOR WILDLIFE AND PLANTS
- (OT) OTHER (e.g. UNIQUE GEOLOGICAL FORMATIONS)

BOSTON


Harrison
NEW ROCHELLE
SW 60-002
SW 52-067
SW 52-040
SW 52-014
30-004
52-043
SW 30-013
SW 30-003
SW 30-014
SW 30-011
30-018
30-002
GLEN COVE
SB
SW 03-002
SW 03-001
30-007
HUNTINGTON STATION
Commack
East Northport
Northport
Kings Park
St James
Lake Ronkonkoma
Oakdale
SB 52-056
SW 52-053
BRENTWOOD
CENTRAL ISLIP
SW 52-007
East Hills
BETHPAGE
PLAINVIEW
DEER PARK
Wyandanch
Farmingdale
LEVITTOWN
EAST MEADOW
HEMPSTEAD
WEST BABYLON
NORTH BABYLON
BAY SHORE
WEST ISLIP
Islip
East Islip
SW 52-001
Garden City
ROCKVILLE CENTRE
VALLEY STREAM
Bellmore
MASSAPEQUA
WANTAGH
LINDENHURST
SITE
Copiague
MERRICK
FREEPORT
BALDWIN
OCEANSIDE
Lynbrook
East Rockaway
Inwood
YORK
52-064
SW 52-063
SP 52-026
SW 52-056
SB 52-001
SW 30-016
SW 30-017
30-018
SW 30-008
SW 30-024
SW 30-021
30-027
SW 30-025
30-023
30-019
30-029
30-030
SW 30-020
30-028
30-043
LONG BEACH
SW 41-014
SW 41-019
SB 41-008
SW 41-015
PW 41-022
41-001
41-002
41-003

REFERENCE NO. 12

Appendix 1.3-1
1 of 5

Hydrology of the Babylon-Islip Area Suffolk County Long Island, New York

By E. J. PLUHOWSKI and I. H. KANTROWITZ

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1768

Prepared in cooperation with the Suffolk County Board of Supervisors, Suffolk County Water Authority, and the New York State Water Resources Commission

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1964

the development of the all-metal airplane created a need for metal-fabricating shops. The post-World War II boom in electronics and electrical equipment found Suffolk County well prepared for the new industry owing to its established aviation firms, and the presence of the required skilled personnel.

AGRICULTURE AND VEGETATION

Although the value of crops produced and marketed in Suffolk County ranks highest of all the counties in New York State, agricultural production in the Babylon-Islip area is relatively small. The soils in the southern and eastern parts of the area have been classified by Lounsberry and others (1928, p. 13) as Sassafras Sandy Loam and Dukes Loamy Sand. These soils are not as productive as the soils in the northern and eastern parts of the county. The Sassafras Loam soils in the northwestern and north-central parts of the area are fairly productive. Proximity of this area to metropolitan markets spurred the development of numerous truck farms. The major crops produced by these farms are tomatoes, cauliflower, corn, string beans, peas, and cucumbers. Intensive urbanization, however, has reduced farm acreage so sharply that only a few farms remained in 1961.

Extensive tracts of natural vegetation are limited principally to the northern and eastern parts of the area. Much of the hilly area of the Ronkonkoma terminal moraine is forested with well-developed stands of deciduous trees. Low moisture retention characterizes the sandy, well-drained soils of the eastern part of the area and thereby precludes extensive forest development. Stands of scrub oak or pitch pine are common here in conjunction with an undergrowth of huckleberry, sweetfern, and wintergreen.

GEOLOGY

The composition, thickness, and geologic history of the deposits underlying the Babylon-Islip area determine the water-bearing characteristics, and the lateral and vertical extent of aquifers and aquicludes that form the hydrologic environment. The stratigraphy of the geologic formations is known almost exclusively from well records and samples, as outcrops, especially those of Cretaceous age, are rare.

STRATIGRAPHY

The Babylon-Islip area is underlain by unconsolidated sediments of Cretaceous, Tertiary, and Quaternary age, which lie on crystalline bedrock of Precambrian or early Paleozoic(?) age (table 1 and pl. 1). Directly overlying the bedrock is the Raritan Formation of Cretaceous age consisting of the Lloyd Sand Member and an unnamed clay

member. Above the Raritan Formation is a thick sequence of deposits of late Cretaceous age which is in part, correlative with the Magothy Formation of New Jersey, but also includes some formations that are younger than the Magothy (Perlmutter and Crandell, 1959, p. 1066). Pending a more specific identification, these beds are referred to as the Magothy(?) Formation. Deposits of Quaternary, and possibly Tertiary age overlie the Cretaceous deposits. These consist, from oldest to youngest, of the Manetto Gravel of doubtful Tertiary (Pliocene ?) age, the Gardiners Clay, and the upper Pleistocene and Recent deposits.

TABLE 1.—*Summary of stratigraphy of the Babylon-Islip area*

Era	Period	Epoch	Geologic unit		Remarks
Cenozoic	Quaternary	Recent	Recent deposits		Stream, beach, and marsh deposits; small areal extent.
		Pleistocene	Upper Pleistocene deposits		Till and outwash deposits of the Wisconsin Glaciation.
			Gardiners Clay		Fossiliferous marine clay of probable Sangamon age.
	Tertiary(?)	Pliocene(?)	Manetto Gravel		Formerly believed to be an outwash deposit but now regarded as a stream-terrace deposit; small areal extent.
Mesozoic	Cretaceous	Late Cretaceous	Magothy(?) Formation		Interbedded sand, silt, and clay.
			Raritan Formation	Clay member	Dominantly clay but may contain some silty and sandy zones locally.
				Lloyd Sand Member	Sand, gravel, and interbedded clay and silt.
Precambrian and early Paleozoic(?)			Bedrock		Schist and gneiss containing some granitic intrusions.

THE BEDROCK

No wells in the Babylon-Islip area have reached bedrock. However, information obtained from wells in nearby parts of Long Island (Suter and others, 1949, p. 30–32, pls. 8 and 9) suggests that the bedrock in the area consists chiefly of schist and gneiss and contains some granitic intrusions. The bedrock is probably correlative in part with igneous and metamorphic rocks of Connecticut.

The bedrock surface dips southeastward at a rate of approximately 50 to 100 feet per mile. The altitude of the surface ranges from about 1,200 feet below sea level in the northwestern part of the area to about 1,800 feet below sea level in the extreme southeastern part. This bedrock surface represents the lower limit of the ground-water reservoir.

(Brice, Whitaker, and Sawyer, 1956, p. 32). Infiltration rates apparently depend chiefly on the interval between successive floodings, depth of water, and permeability of the basin surface. There are now more than 80 storm-water recharge basins in the Babylon-Islip area, and the number may be expected to increase as urbanization continues. The effectiveness of the basins as a means of recharging storm water to the ground-water reservoir from a suburban area is probably comparable to that of natural surface conditions prior to urbanization (Brice, Whitaker, and Sawyer, 1956, p. 2).

Public sanitary-sewer systems on Long Island discharge their effluent directly into tidewater. Because there are no such systems in the Babylon-Islip area (1961), theoretically all water withdrawn from the ground-water reservoir is returned to the ground. Two large sewage-leaching beds serve Pilgrim and Central Islip State Hospitals, and several smaller ones are at other institutions. The balance of domestic sewage is returned to the ground through cesspools. Water pumped for industrial purposes is usually returned through diffusion wells and cesspools. A small amount of industrial pumpage containing contaminants is discharged into tidewater to avoid pollution of ground-water supplies.

Artificial recharge in the Babylon-Islip area counters the effect of urbanization by restoring the natural rate of infiltration of precipitation through the use of recharge basins and by returning most of the water pumped.

Because it is not practical to measure directly the rate of recharge to the ground-water reservoir, recharge must be determined by indirect methods. An approximate value for recharge is obtained by subtracting evapotranspiration losses and direct runoff from precipitation. The recharge to the ground-water reservoir in the Babylon Islip area as determined by this method is:

	Approximate annual rate (inches)	
Precipitation		46
Evapotranspiration	21	
Direct runoff	1	
Total water loss		22
Recharge to ground-water reservoir		24

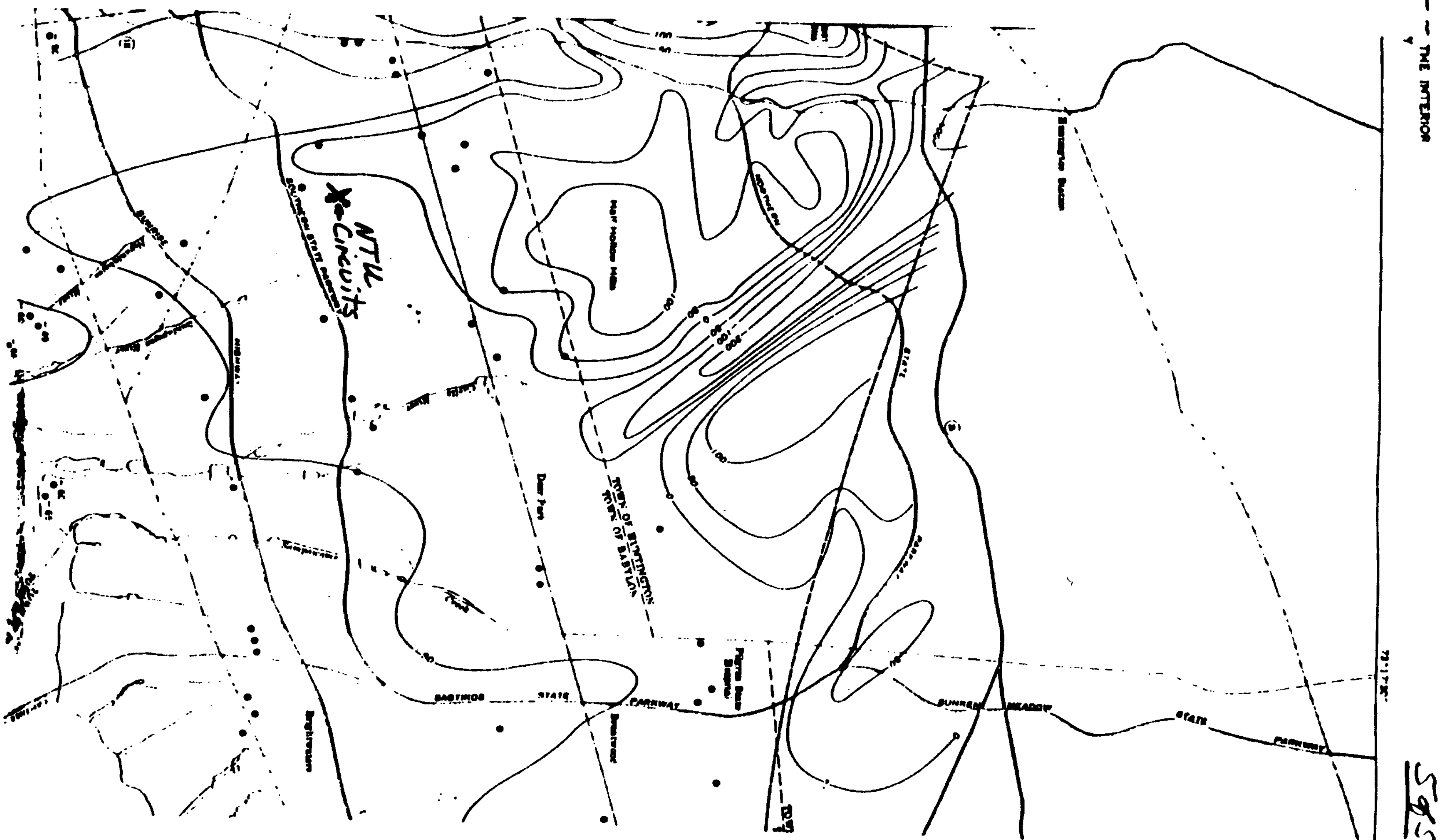
A recharge rate of 24 inches per year is equivalent to 1.1 mgd (million gallons per day) per sq mi or an annual total of about 215 mgd for the Babylon-Islip area. The bulk of this recharge occurs during late fall, winter, and early spring, when evapotranspiration is at a minimum.

WATER-SUPPLY PAPER 1788
PLATE I

MAP OF THE BABYLON-ISLIP AREA, SHOWING GENERALIZED SURFICIAL GEOLOGY, LOCATION OF WELLS, FROM FIRE ISLAND STATE PARK TO BRENTWOOD, SUFFOLK COUNTY, NEW YOR

SCALE 1:62,500

WATER-SUPPLY PAPER 17[illegible]8
PLATE 3

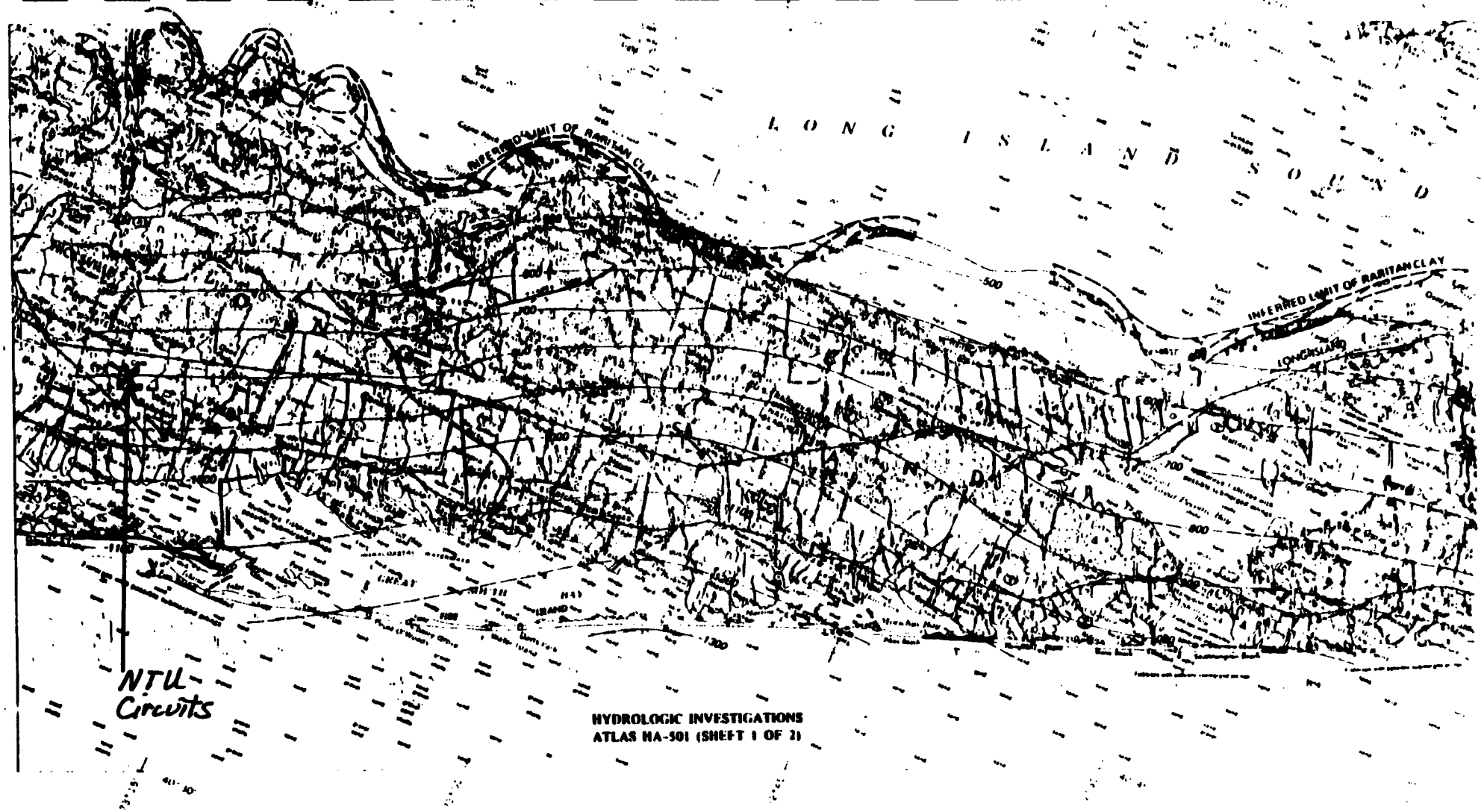


MAP OF THE BABYLON-ISLIP AREA, SUFFOLK COUNTY, NEW YORK, SHOWING CONTOURS ON THE TOP OF THE MAGOTHY(?) FORMATION AND ALTITUDE OF THE TOP OF THE GARDINERS CLAY

SCALE 1:62 500

EXPLANATION

REFERENCE NO. 13



NTL Circuits

HYDROLOGIC INVESTIGATIONS
ATLAS HA-501 (SHEET 1 OF 2)

MAP SHOWING ALTITUDE OF TOP OF RARITAN CLAY

SCALE 1:250,000

5 0 5 10 15 20 25 MILES

5 0 5 10 15 20 25 30 35 KILOMETERS

CONTOUR INTERVALS 25, 50, AND 100 FEET
DATUM IS MEAN SEA LEVEL

Prepared in cooperation with the
SUFFOLK COUNTY WATER AUTHORITY
and
SUFFOLK COUNTY DEPARTMENT OF ENVIRONMENTAL CONTROL

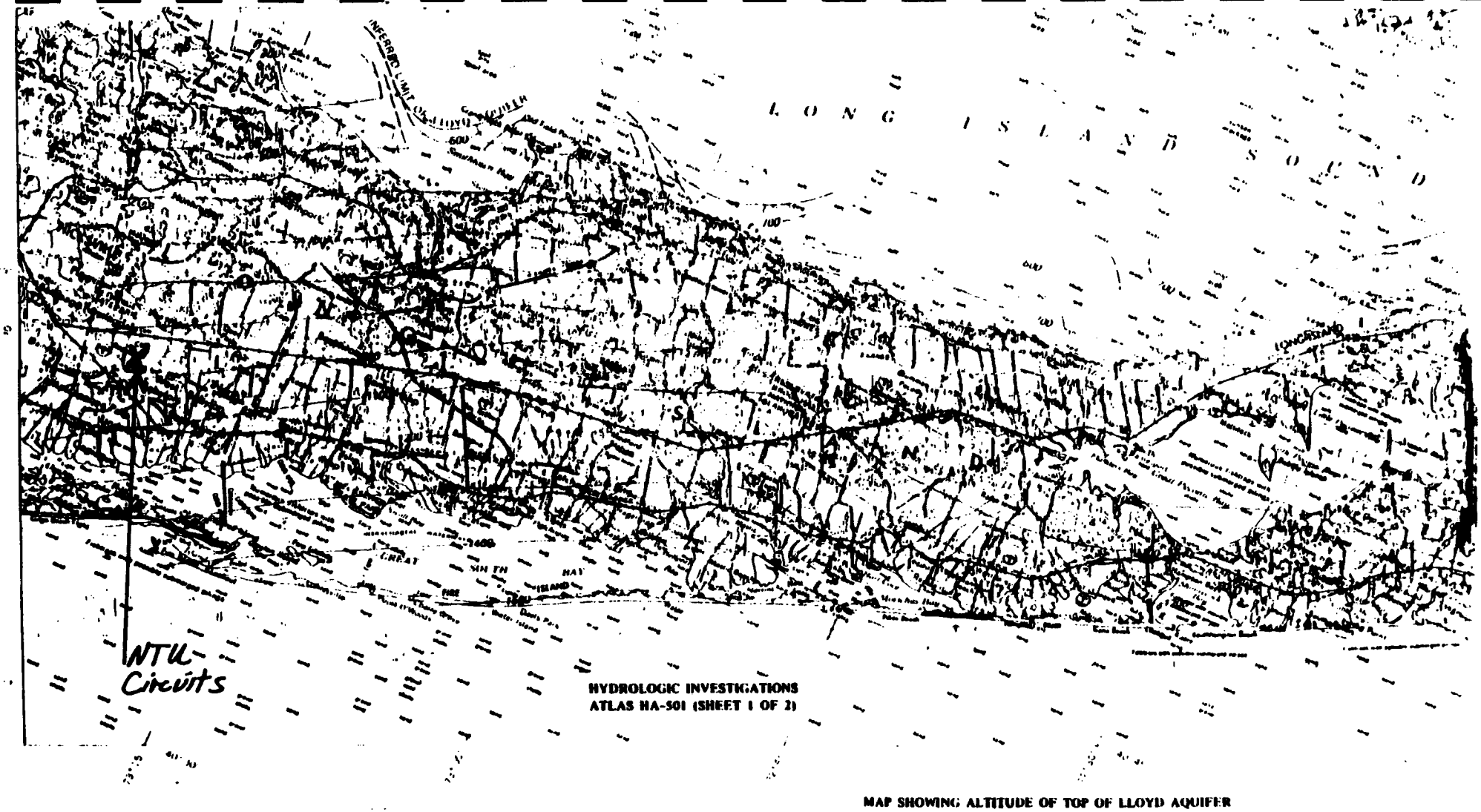
HYDROGEOLOGY OF SUFFOLK, COUNTY, LONG ISLAND, NEW YORK

By

H. M. Jensen and Julian Soren

1974

Roomful 13-2
1974



HYDROLOGIC INVESTIGATIONS
ATLAS HA-501 (SHEET 1 OF 2)

MAP SHOWING ALTITUDE OF TOP OF LLOYD AQUIFER

SCALE 1:250 000

5 0 5 10 15 20 25 MILES

5 0 5 10 15 20 25 30 35 KILOMETERS

CONTOUR INTERVALS 25, 50, AND 100 FEET
DATUM IS MEAN SEA LEVEL

Prepared in cooperation with the
SUFFOLK COUNTY WATER AUTHORITY
and
SUFFOLK COUNTY DEPARTMENT OF ENVIRONMENTAL CONTROL

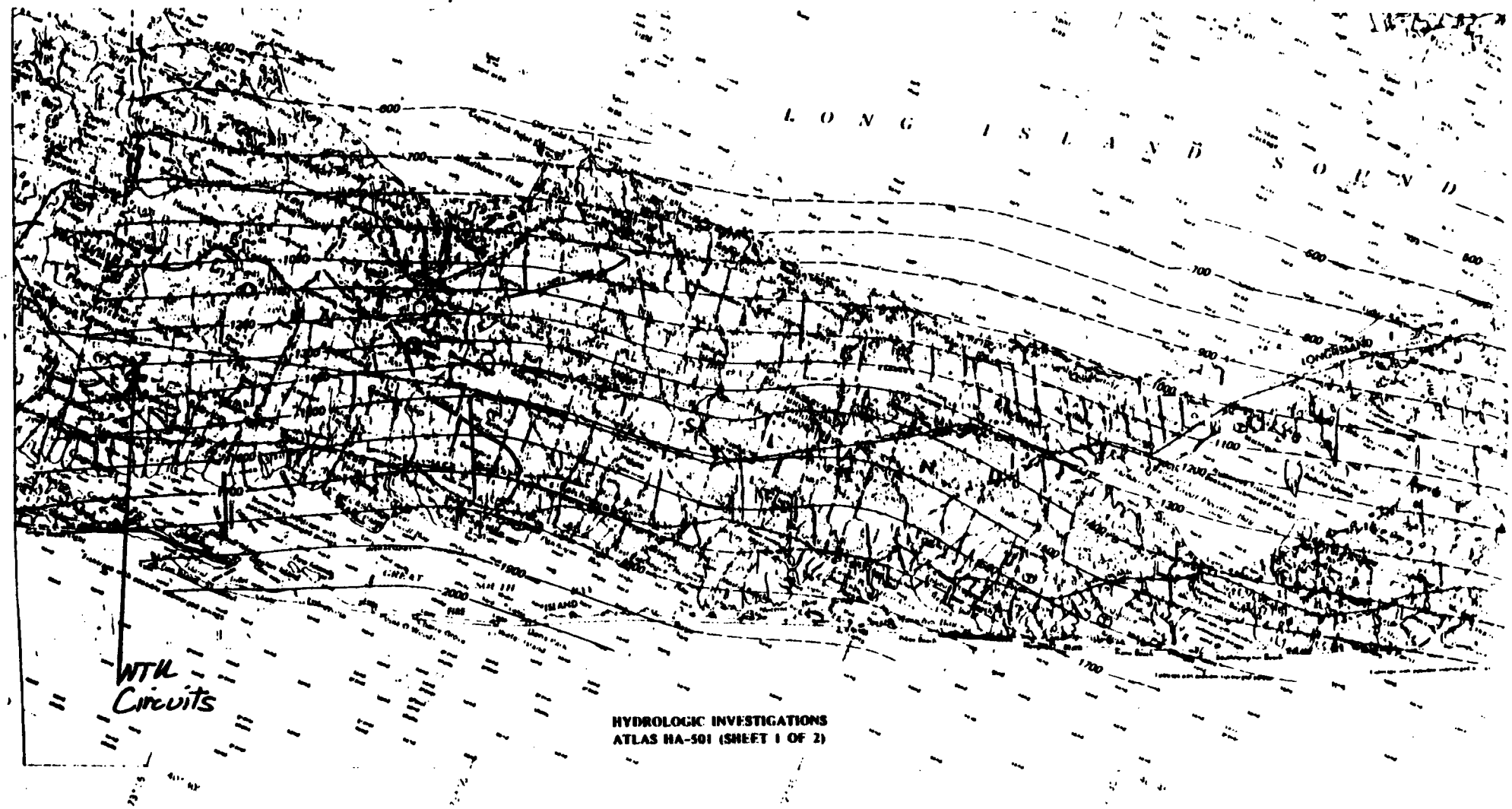
HYDROGEOLOGY OF SUFFOLK, COUNTY, LONG ISLAND, NEW YORK

By

H. M. Jensen and Julian Soren

1974

2 of 4



HYDROLOGIC INVESTIGATIONS
ATLAS HA-501 (SHEET 1 OF 2)

MAP SHOWING CONFIGURATION OF THE BEDROCK SURFACE

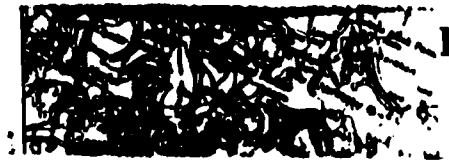
SCALE 1:250,000

5 0 5 10 15 20 25 MILES

5 0 5 10 15 20 25 30 35 KILOMETERS

CONTOUR INTERVALS 25, 50, AND 100 FEET
DATUM IS MEAN SEA LEVEL

Prepared in cooperation with the
SUFFOLK COUNTY WATER AUTHORITY
and
SUFFOLK COUNTY DEPARTMENT OF ENVIRONMENTAL CONTROL



HYDROGEOLOGY OF SUFFOLK, COUNTY, LONG ISLAND, NEW YORK

By

H. M. Jensen and Julian Soren

1974

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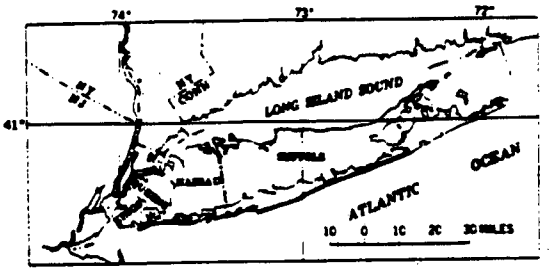
INTRODUCTION

WATER NEEDS OF SUFFOLK COUNTY

Water pumped from aquifers underlying Suffolk County (index map) is the sole source of water used for public supply, agriculture, and industry. The county's population grew from less than 200,000 in 1940 to 1.1 million in 1970. Most of the growth occurred after 1950. Ground-water pumpage increased from 40 mgd (million gallons per day) in 1950 to 155 mgd in 1970 (New York State Department of Environmental Conservation, written commun., June 1, 1971). The projected ground-water use for an anticipated population of 2 million in the county by 1990 is 300 mgd (New York State Conservation Department, 1970, p. 26–27).



INDEX MAP SHOWING LOCATION (SHADED) OF SUFFOLK COUNTY

PURPOSE AND SCOPE

The large and growing demand for ground water in Suffolk County has created a need for a detailed knowledge of the geometry and the hydrologic characteristics of the ground-water reservoir. Mapping of subsurface geology and hydraulic heads in the aquifers are important prerequisites to obtaining this information. Maps of the subsurface geologic units of Long Island were first shown in a report by Suter and others (1949, pls. VIII to XXI). But those maps were highly generalized, because there were few data on deep borings and wells in the county when the report was prepared. Since 1949, additional data from many deep borings and wells in the county have been collected.

In 1968, as part of a continuing cooperative program of water-resources studies with the Suffolk County Water Authority and Suffolk County Department of Environmental Control, the U.S. Geological Survey began an updating of the hydrogeologic and hydrologic maps of all the county. The basic data in Jensen and Soren (1971), the first product of the program, are the basis for the hydrologic maps in this report.

ACKNOWLEDGMENTS

The authors appreciate the cooperation of well-drilling companies, their employees, and the many officials of public and private water companies who furnished geologic and hydrologic data for use in this report.

GEOLOGIC AND HYDROGEOLOGIC UNITS

Pleistocene glacial drift generally mantles the county's surface. Pleistocene deposits overlie unconsolidated deposits of Late Cretaceous age. The Cretaceous strata lie on a peneplain that was developed on Precambrian(?) crystalline rocks.

Major landforms include ridges, valleys, and plains. These landforms are roughly oriented in belts parallel to the county's length. The northern and the central parts are traversed by irregular sandy and gravelly ridges of terminal moraine. The crest of the northern ridge ranges in height from 100 to 300 feet above sea level and the crest of the central ridge from 150 to 400 feet. The highest altitudes in the inter-ridge area range from 100 to 200 feet. Irregular plains and rolling hills, formed from sandy and gravelly ground moraine and outwash deposits of sand and gravel lie in the area between the ridges. An outwash plain slopes at a near-uniform gradient from the southern base of the central ridge, which is about 100 feet above sea level, southward to Great South Bay and the ocean. Along the north shore, steep bluffs as high as 100 feet and generally narrow sandy and gravelly beaches face Long Island Sound. The barrier-bar system at the southernmost side of the county is composed of sandy beach and dune deposits. The highest altitudes of the barrier bars generally range from 10 to 45 feet.

The ground-water reservoir system of Suffolk County is composed of hydrogeologic units that include lenses and layers of clay, silt, clayey and silty sand, sand, and gravel. A hydrogeologic unit consists of a geologic unit or a group of contiguous geologic units classified by hydraulic characteristics. These units include aquifers, which are principal water sources, and confining layers, which separate the aquifers. The aquifers are, from the land surface downward, the upper glacial aquifer, the Magothy aquifer, and the Lloyd aquifer. The major areal confining layers are, in descending order, the Gardiners Clay, the Monmouth greensand, and the Raritan clay. The base of the ground-water reservoir is the crystalline bedrock. Characteristics of the geologic and the hydrogeologic units are summarized in the table, and the following data of hydrologic significance are shown on the maps: base of ground-water reservoir, altitudes of aquifers, altitudes and limits of confining layers, and distribution of surficial deposits. The hydrogeologic sections show the vertical relations of the units to each other.

The sharp angular shapes of some of the contours reflect the fact that in places the contours are drawn on stratigraphic tops of the hydrogeologic units and in places the contours are drawn on erosional surfaces. The sharp angles result from the juncture of a stratigraphic top and an eroded surface.

REFERENCE NO. 14

Appendix 1.3-3
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LONG ISLAND WATER RESOURCES
BULLETIN NUMBER 1

RESULTS OF SUBSURFACE EXPLORATION IN THE MID-ISLAND AREA OF WESTERN SUFFOLK COUNTY, LONG ISLAND, NEW YORK

BY
JULIAN SOREN
U. S. GEOLOGICAL SURVEY

WITH A SECTION ON
POTENTIAL DEVELOPMENT OF GROUNDWATER
IN THE MID-ISLAND AREA

BY
PHILIP COHEN
U. S. GEOLOGICAL SURVEY

PREPARED BY

U. S. GEOLOGICAL SURVEY

IN COOPERATION WITH

SUFFOLK COUNTY LEGISLATURE
SUFFOLK COUNTY WATER AUTHORITY

PUBLISHED BY

SUFFOLK COUNTY WATER AUTHORITY

1971

UPPER CRETACEOUS SERIES

Raritan Formation

Lloyd Sand Member

The Lloyd Sand Member of the Raritan Formation comprises the Lloyd aquifer on Long Island. This unit consists mostly of beds and lenses of light- to medium-gray sand and gravelly sand, commonly containing small to large amounts of interstitial clay and silt, that are intercalated with beds and lenses of light- to dark-gray clay, silt, and clayey and silty sand.

Only two drill holes are known to have penetrated the Lloyd in the mid-island area. One hole partly penetrated the unit at the Pilgrim State Hospital, in Brentwood. The second hole, which is in the village of Lake Ronkonkoma, and which was one of the test holes drilled as part of this study, fully penetrated the unit. A log of the test hole describing lithology of the Lloyd is shown in table 1, S33379.

The surface of the Lloyd is roughly parallel to the bedrock surface. The Lloyd surface dips from an altitude of about 550 feet below sea level in the northwestern part of the area, to an altitude of about 1,250 feet below sea level in the southeastern part (pl. 2), and the unit's thickness ranges from about 260 feet to 360 feet from northwest to southeast, respectively. Plate 2 shows contours on the Lloyd surface. Plate 2 also shows contours on the bedrock surface; therefore, the Lloyd's thickness, in any part of the area, can be estimated by computing the local difference between the altitudes of the bedrock and Lloyd surfaces.

The Lloyd aquifer is moderately permeable. Its average horizontal permeability has been estimated by Lusczynski and Swarzenski (1966, p. 19), Isbister (1966, p. 20), and Soren (in press) to range between 400 and 500 gpd per sq ft (gallons per day per square foot) in Queens and Nassau Counties, west of the mid-island area. Warren and others (1968, p. 102) estimated the Lloyd's horizontal permeability to be 165 gpd per sq ft at the Brookhaven National Laboratory, about 12 miles east of the mid-island area. The section of Lloyd penetrated by the test well near Lake Ronkonkoma was fairly sandy and gravelly (table 1, S33379), and at this site the average horizontal permeability of the Lloyd probably is considerably more than 500 gpd per sq ft. Wells tapping the Lloyd in other parts of Long Island have been pumped at rates of as much as 1,600 gpm (gallons per minute), and the specific capacities of these wells (pumpage, in gallons per minute, divided by drawdown, in feet) have been reported to range from 3 to 40 gpm per foot of drawdown.

At present, there is no pumpage from the Lloyd aquifer in the mid-island area, mainly because of the great depth of the aquifer, and because more permeable aquifers are found at shallower depths. In addition to being at a greater depth, the water from the Lloyd commonly has undesirably high concentrations of iron.

Clay Member

The clay member of the Raritan Formation (commonly referred to as the Raritan clay) completely covers the underlying Lloyd aquifer in the mid-island area, and confines water in that aquifer. The Raritan clay consists mostly of beds and lenses of light- to dark-gray clay, silt, and clayey and silty fine sand (table 1). Thin to thick sandy beds commonly occur in the unit from place to place, but these beds do not have great lateral extent. Laminae and thin beds of lignite and pyrite and disseminated particles of these substances are common in the clay beds of the unit. The thickness of the Raritan clay increases to the southeast, and ranges from about 150 feet in the northwestern part of the mid-island area to about 200 feet in the southeastern part.

The surface of the Raritan clay is roughly parallel to that of the underlying Lloyd Sand Member. The altitude of the surface of the Raritan clay ranges from about 300 feet below sea level in the northwestern part of the mid-island area, to about 1,050 feet below sea level in the southeastern part (pl. 3).

Matawan Group-Magothy Formation, Undifferentiated

The Matawan Group-Magothy Formation, undifferentiated, comprises the Magothy aquifer of Long Island. Deposits in this unit consist of beds and lenses of light-gray fine to coarse sand, containing traces to large amounts of interstitial clay and silt, intercalated with thin to thick beds and lenses of light- to dark-gray clay, silt, and clayey and silty sand (table 1). The clay and silt beds commonly contain laminae and thin beds of lignite. Disseminated lignite and pyrite also are common in the sand beds of the aquifer. Gravelly coarse sand is commonly found in the basal part of the aquifer. This coarse zone ranges in thickness from 100 to 150 feet west of the mid-island area to 150 to 200 feet in the mid-island area. The basal zone also commonly contains abundant interstitial clay and silt and many thin to thick beds and lenses of clay, silt, and clayey and silty sand.

The surface of the Magothy aquifer (pl. 4) is not planar as are the surfaces of the underlying units. The Magothy surface was deeply eroded during Tertiary time, and probably was considerably eroded in Pleistocene time. Consequently, the depth to the Magothy aquifer and the aquifer's thickness cannot be predicted as accurately as the depths and thicknesses of the underlying units. Many control points in addition to those already known are needed to accurately map the upper surface of the Magothy aquifer.

The highly irregular character of the surface of the Magothy aquifer is shown in plate 4. The upper surface of the aquifer ranges in altitude from as high as about 200 feet above sea level to as low as about 500 feet below sea level. The Magothy was completely removed by erosion in a buried valley near the South Huntington area, and in that area upper Pleistocene deposits lie directly on the Raritan clay. This buried valley was called the "Huntington buried valley" by Lubke (1964, pl. 3), and as mapped by Lubke, the valley extended about 2-1/2 miles south of the Northern State Parkway.

source of the rock materials in the outwash deposits is manifold. As the glaciers moved southward to Long Island, they plucked the bedrock and soils of the surfaces they slid over. Rock materials were incorporated into the ice in contact zones and were also pushed along the glacial front. As the ice melted in late Pleistocene time, the various rock materials were carried away by broad coalescing streams and sheets of water. Consequently, the outwash deposits are stratified, and because of the varied materials carried by the glacier, these deposits consist of a heterogeneous suite of rock types. The great diversity of rock and mineral suites in the Pleistocene deposits, along with the chemically unstable (easily decomposed) rocks and minerals, commonly facilitates differentiation of glacial from the Cretaceous deposits on Long Island.

Outwash deposits underlie the plain in the mid-island area south of the Ronkonkoma terminal moraine, where the major source of glacial deposition was material from the Ronkonkoma ice advance. A readvance of the glacial front followed recession of the Ronkonkoma ice front and resulted in the formation of the Harbor Hill terminal moraine. Lakes were formed in depressions and valleys between the Ronkonkoma and Harbor Hill terminal moraines, and clayey materials were deposited in these lakes. The intermorainal areas also contain recessional deposits of outwash and ground moraine (see the following section, "Ground-Moraine Deposits") from the Ronkonkoma and Harbor Hill deglaciations, and these materials buried the clayey lake deposits.

The outwash deposits are thickest in the buried valleys and thinnest where the Cretaceous surface is closest to land surface (pl. 5). These deposits generally extend below the water table, and are a major source of ground water. Outwash deposits comprise most of the so-called upper glacial aquifer of Long Island, and because these deposits of sand and gravel contain virtually no interstitial clay and silt, the upper glacial aquifer is the most permeable aquifer on Long Island. The estimated average horizontal permeability of the outwash deposits is about 1,000 to 1,500 gpd per sq ft (Lusczynski and Swarzenski, 1966, p. 17; and Soren, in press). Warren and others (1968, p. 75) computed the horizontal permeability of outwash to be about 1,300 gpd per sq ft at the Brookhaven National Laboratory, east of the mid-island area. A horizontal permeability for outwash as high as about 2,500 gpd per sq ft has been reported in Nassau County, west of the project area (Isbister, 1966, p. 29).

Public-supply and other high-capacity wells screened in glacial outwash on Long Island have yielded as much as 1,700 gpm, and reported specific capacities of such wells range from less than 10 gpm per foot of drawdown to as much as about 200 gpm per foot of drawdown; however, the specific capacities range mostly from 50 to 100 gpm per foot of drawdown. (See section "Yields of Individual Wells.")

the shorelines, the direction of flow is reversed, and ground-water movement is upward from the deeper aquifers toward the surface. Thus, because of the character of the flow system, under natural conditions virtually all the recharge to the Magothy and Lloyd aquifers in western Suffolk County originated in the mid-island area, and all of that recharge ultimately discharged from the ground-water system near the shorelines.

The movement of ground water through Long Island's aquifers in the horizontal direction is generally more rapid than movement in the vertical direction because of the occurrence of interbedded fine- and coarse-grained layers, and because the largest dimensions of unevenly shaped particles in the individual layers tend to be oriented horizontally. Approximate rates of ground-water movement can be computed from hydraulic gradients and estimated coefficients of permeability and porosities of the aquifers. In 1968, water in the upper glacial aquifers in the project area was moving horizontally at rates from less than 0.5 foot per day at points distant from centers of pumping, to hundreds of feet per day near the screens of pumping wells. At the same time, water in the Magothy aquifer was moving horizontally at rates from less than 0.2 foot per day at points distant from pumping, to hundreds of feet per day near the screens of pumping wells.

HYDRAULIC INTERCONNECTION OF AQUIFERS

The aquifers of Long Island are hydraulically interconnected. Layers of clay and silt within an aquifer or between aquifers serve to confine water below them, but they do not completely prevent the vertical movement of water through them. Ground water moves downward readily through coarse outwash deposits in the upper glacial aquifer. Vertical movement of water through the Magothy aquifer is impeded by beds and lenses of clay and silt. Because the clay and silt strata in the Magothy are not continuous, some water may move around lenses of this material in addition to moving slowly through the fine-grained strata.

The contact between the upper glacial and Magothy aquifers is not regular either in attitude or in composition of the contact surfaces. Glacial deposits in buried valleys are in lateral contact with truncated sandy beds in the Magothy. In the buried valleys water can laterally enter the Magothy at great depth directly from the glacial deposits, rather than the water having to move vertically to the same depth through less permeable Magothy beds. In the Huntington buried valley, glacial deposits extend completely through the Magothy aquifer to the underlying Raritan clay. (See plate 4.) In addition to the good hydraulic continuity between the upper glacial and Magothy aquifers in the buried valleys, good hydraulic continuity occurs between the aquifers outside the buried valleys where glacial sand and gravel deposits lie directly on Magothy sand beds. Thus, a fairly good hydraulic connection exists between the upper glacial and Magothy aquifers over large parts of the mid-island area, and the configuration of the piezometric surface of the Magothy aquifer is generally similar to that of the water table. However, in the mid-island area hydraulic heads in the Magothy are lower than those in the upper glacial aquifer because of the downward component of ground-water movement in the area.

The thick areally persistent Raritan clay that lies between the Magothy and Lloyd aquifers impedes but does not prevent downward movement of ground water into the Lloyd aquifer, and water in the Lloyd is tightly confined between the Raritan clay and bedrock. Downward leakage into the bedrock is negligible.

Figures 2 and 3 show hydrographs of wells screened in the upper glacial aquifer and the Magothy aquifer at the test-drilling sites in Brentwood and Hauppauge. At both sites, the heads in the deepest wells in the Magothy aquifer are about 2.5 to 3 feet lower than the heads in the shallowest wells in the upper glacial aquifer. The loss of head downward reflects the downward movement of ground water in the mid-island area. The hydrographs in figures 2 and 3 show that the heads in these two aquifers in the project area decrease at a fairly uniform rate with increasing depth. In addition, water-level fluctuations in the two groups of wells were very similar. Both of these facts, the uniform decrease in head and the similar water-level fluctuations, reflect the high degree of hydraulic interconnection between the upper glacial and Magothy aquifers.

The average vertical permeability of the Magothy aquifer is only poorly known. Estimates range from less than 1 to about 30 gpd per sq ft. Assuming that it averages about 5 gpd per sq ft in the mid-island area, the computed amount of downward ground-water movement through the Magothy aquifer in the vicinity of the ground-water divide in 1968 was about 0.4 mgd (million gallons per day) per square mile, and the estimated velocity of the downward movement was about 0.006 foot per day.

Because of the low permeability of the Raritan clay, the hydraulic-head loss across this unit is very much larger than the head loss across a comparable thickness of the Magothy and upper glacial aquifers. At the easternmost test site in the village of Lake Ronkonkoma, wells were screened near the base of the Magothy and near the top of the Lloyd aquifers (pl. 5, section A-A', S33379-80). In 1968, the head near the base of the Magothy aquifer (about 45.5 feet above sea level) was about 11.5 feet higher than the head in the Lloyd aquifer (about 34 feet above sea level). Head losses across the Raritan clay at localities east and west of the Lake Ronkonkoma area differ considerably. At Upton, about 12 miles east of the mid-island area, the head loss across the clay was about 6 feet in 1968; and at Plainview (in Nassau County), about 3 miles southwest of Melville, the head loss across the clay was about 42 feet. The differences in head loss from place to place are largely a result of differences in the vertical permeability and thickness of the Raritan clay.

The head in the Lloyd aquifer at Lake Ronkonkoma in 1968 (about 34 feet above sea level) was higher than either of the heads in the Lloyd at Upton (about 30.5 feet above sea level) and at the Suffolk-Nassau boundary (about 27.5 feet above sea level). The head in the Lloyd at Terryville, about 7 miles northeast of the Ronkonkoma area was about 21 feet above sea level in 1968, and it was 19 feet above sea level at Fire Island State Park in 1968, about 13 miles to the southwest. These data suggest that water in the Lloyd aquifer is moving radially from the Lake Ronkonkoma area. The estimated rate of horizontal movement of water in the Lloyd aquifer in the project area in 1968, was on the order of 0.1 foot per day.

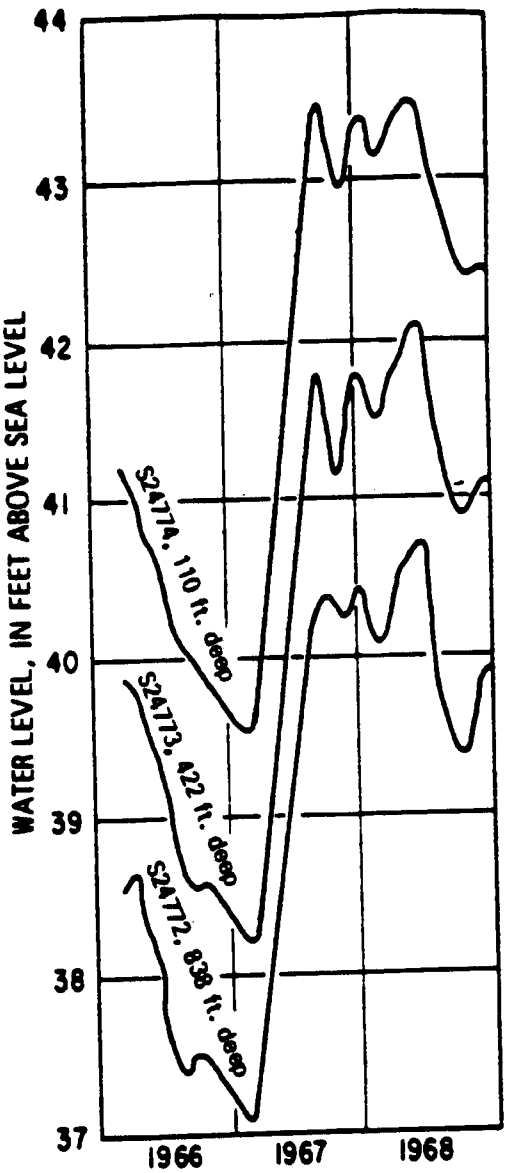


Figure 2.--Fluctuations of water levels in wells screened in the upper glacial aquifer and the Magothy aquifer at Brentwood, N. Y.

FLUCTUATIONS OF GROUND-WATER LEVELS

Fluctuations of water levels in the wells of the mid-island area reflect local variations in recharge to and discharge from the aquifers tapped by the wells. Therefore, changes in ground-water levels afford an insight into many aspects of the ground-water system. Furthermore, the information on water-level fluctuations can be used to help assess the impact of urbanization on the natural hydrologic system.

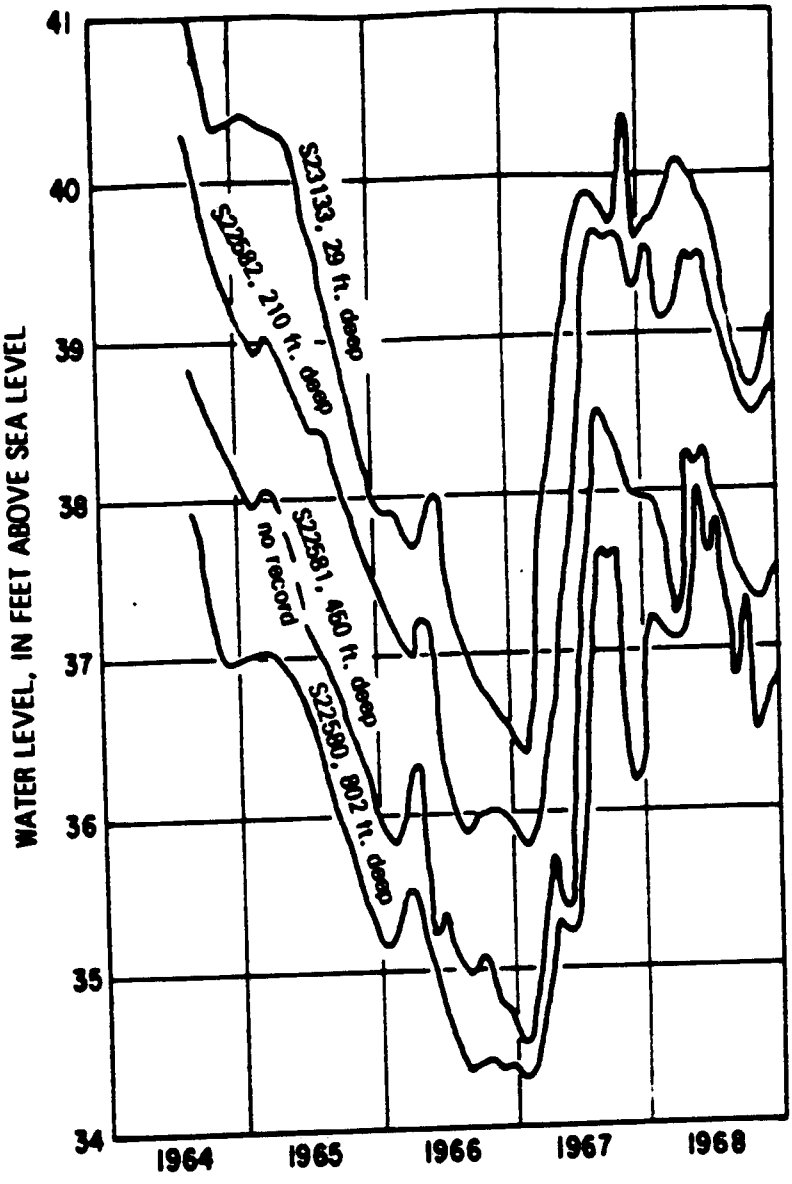


Figure 3.--Fluctuations of water levels in wells screened in the upper glacial aquifer and the Magothy aquifer at Hauppauge, N. Y.

Under natural conditions and in relatively undeveloped areas of Long Island, the water table fluctuates over a range of several feet during the year. Under such conditions, the water table has a rhythmic seasonal pattern; the lowest levels are in late autumn and highest levels are in early spring. This pattern of decline and recovery of the water table reflects the greatest losses of water through evapotranspiration during the growing season and the least such losses between growing seasons. The hydrologic systems in such undeveloped areas are in equilibrium, with inflow balancing outflow. However, if large amounts of water are continually pumped out of a ground-water system, the water table declines until equilibrium is reestablished at a lower level, reflecting a loss of ground water from storage and decreased subsurface and stream outflow from the system.

REFERENCE NO. 15

New York State Atlas of Community Water System Sources 1982

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF PUBLIC WATER SUPPLY PROTECTION

New York State Atlas of Community Water System Sources

1982

NEW YORK STATE DEPARTMENT OF HEALTH

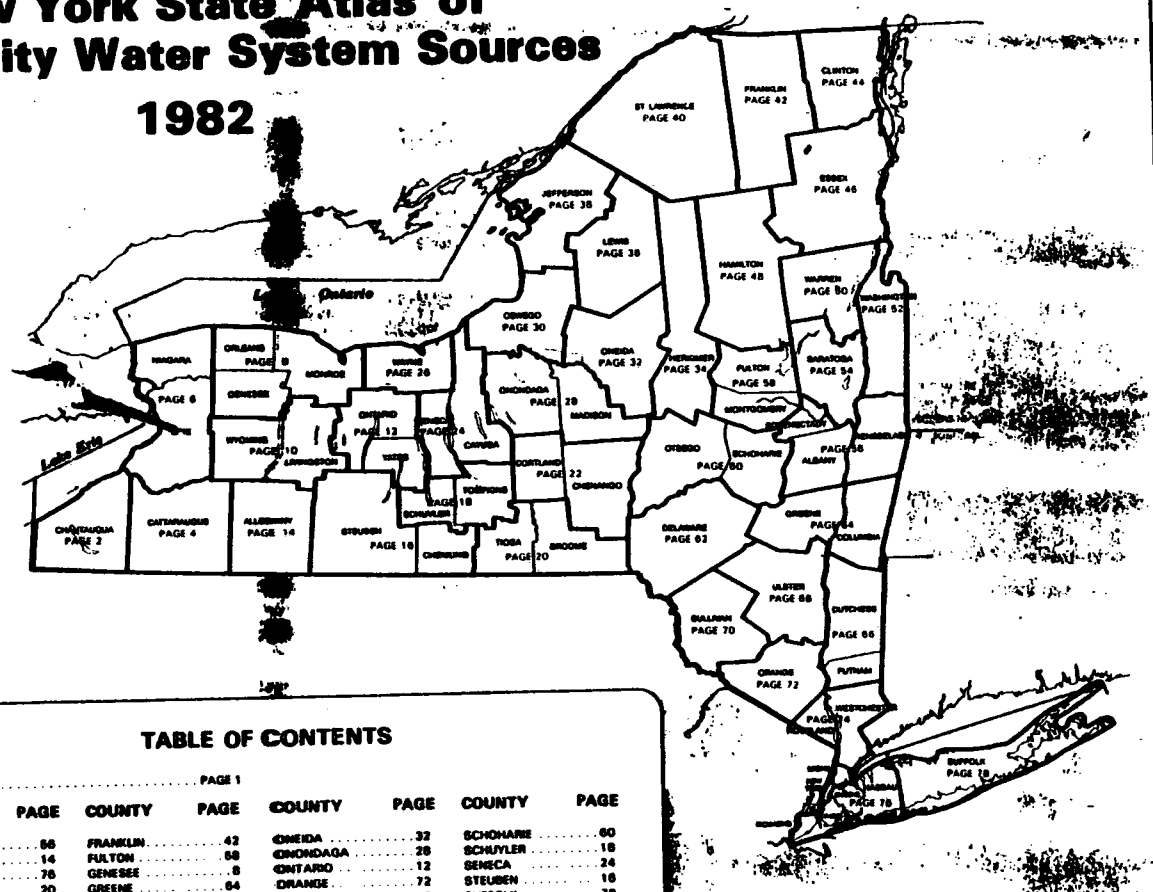


TABLE OF CONTENTS

LEGEND

BOUNDARIES AND PLACES

International
State
County
Town
Indian Reservation
City — Village
Unincorporated Place — Federal Reservation
Built-up Area (Over 25 000 population including any contiguous city or village)

CLASSIFICATION OF POPULATED PLACES

100,000 or more	YONKERS
50,000 to 100,000	Levittown
12,500 to 50,000	Poughkeepsie
2,500 to 12,500	Hampton Bays
250 to 2,500	Boscobel
250 or less	Colton

TRANSPORTATION

Highways
- Divided Highways
  - Full Control of Access
  - Partial or No Control of Access
- Undivided Highway
- Interchange
- Touring Route (State, U.S., Interstate) or State Parkway
- Touring Route Markers (State, U.S., Interstate)

Railroads
- Operating Line — Service Discontinued
- Operator
- Owner (If Other than Operator)
- Company Having Trackage Rights

Airports (Open to the Public, Military)
- Runway under 4000' — Runway over 4000'

Rest Areas
- Food, Gas, Rest Rooms — Rest Rooms
- Gas, Rest Rooms — Parking Only

RECREATION FACILITIES

State or National Recreation Area
State Campground
State Boat Launching Site
State Canal Park
State Fish Hatchery
Other State Recreation Site

SUFFOLK COUNTY

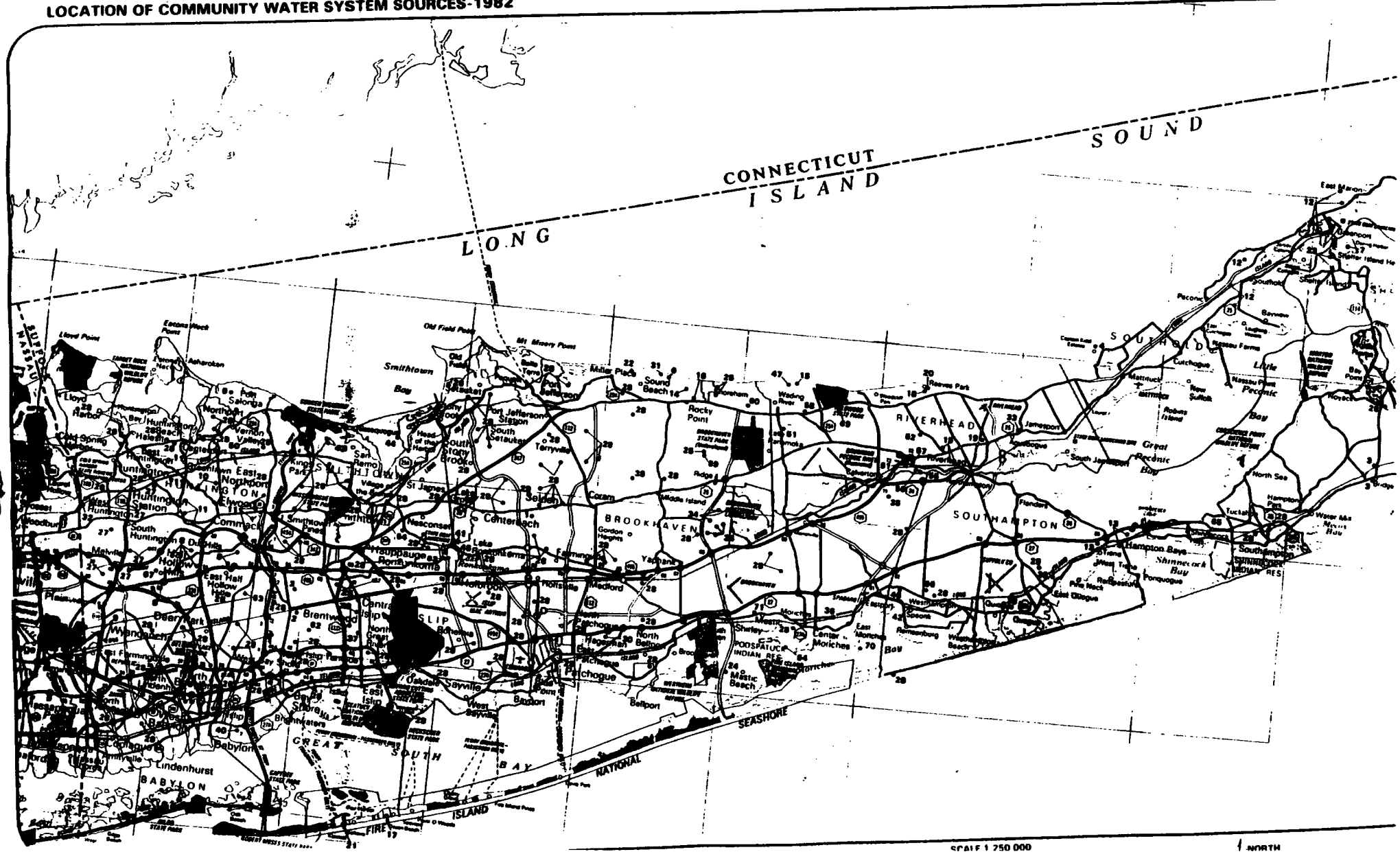
ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
Municipal Community			
1	Bevon Water Corporation	1150	Wells
2	Brentwood Water District	25812	Wells
3	Bridgehampton Water Company	1916	Wells
4	Captain Kidd Water Company	580	Wells
5	Crab Meadow Beach	50	Wells
6	Culross Corporation (Culross Beach)	104	Wells
7	Dering Harbor Village	130	Wells
8	Dix Hills Water District	30000	Wells
9	East Farmingdale Water District	7850	Wells
10	Fishers Island Water Works Corporation	250	Barlow, Middle Farms and Treasure Ponds, Wells
11	Greenlawn Water District	40000	Wells
12	Greenport Village	6851	Wells
13	Hampton Bays Water District	9500	Wells
14	Hawthorne - Maple Civic Association	50	Wells
15	Herod Point Association	80	Wells
16	North Shores Water Company	5000	Wells
17	Ocean Beach Village	155	Wells
18	Reeves Beach Water Company	650	Wells
19	Riverhead Water District	9300	Wells
20	Roanoke Water Corporation	201	Wells
21	Saltaire Village	35	Wells
22	Scott's Beach Water Company	342	Wells
23	Shelter Island Heights Association	498	Wells
24	Shirley Water Works	3400	Wells
25	Shorewood Water Corporation	10000	Wells
26	Soundview Association	236	Wells
27	South Huntington Water District	51260	Wells
28	Suffolk County Water Authority	900000	Wells
29	Sunhill Water Corporation	3959	Wells
30	Swan Lake Water Corporation	1485	Wells
31	Terrace-on-the-Sound	400	Wells
32	Woodbury Triangle Corporation	800	Wells
Non-Municipal Community			
33	Aquebogue Mobile Home Court	120	Wells
34	Brookhaven National Labs	3373	Wells
35	Calverton Hills Owners Association	897	Wells
36	Cedar Lodge Nursing Home	100	Wells
37	Central Islip Psychiatric Center	4525	Wells
38	Crest Hall Health Related Facility	120	Wells
39	East Quogue Mobile Estates	160	Wells
40	Good Samaritan Hospital	NA	Wells
41	Greis Mobile Park	70	Wells
42	Hampton Gateway Apartments	304	Wells
43	Kings Park Psychiatric Center	3100	Wells
44	Knox School	NA	Wells
45	Lake Hurst Lodge Adult Home	57	Wells
46	Leier's Mobile Park	350	Wells
47	Little Flower Children's Services	150	Wells
48	Montauk Air Force Station	10	Wells
49	Napeague Trailer Park	78	Wells
50	Northport VA Hospital	3000	Wells
51	Oak Park Trailer Park	50	Wells
52	Oakland Ridge Mobile Park	74	Wells
53	Park Lake Rest Home	46	Wells
54	Peacock Alley	35	Wells
55	Peconic River Trailer Park	90	Wells
56	Peconic View Adult Mobile Home Park	70	Wells
57	Pinecrest Garden Apartments	392	Wells
58	Ramblewood Mobile Homes	210	Wells
59	Ridge Rest Home	58	Wells
60	Rocky Point Family Housing	55	Wells
61	Rollin Mobile Homes	220	Wells
62	St Joseph Convent - Long Island University	1177	Wells
63	Sam A Lewison Start Center	40	Wells
64	South Bay Adult Home	40	Wells
65	Southampton College	1000	Wells
66	Speonk Mobile Home Park	50	Wells
67	Suffolk Developmental Center	3500	Wells
68	Three Mile Harbor Trailer Park	40	Wells
69	Thurm's Mobile Estates	450	Wells
70	USCG Station - Moriches	23	Wells
71	Wes Dubicki Apartments	NA	Wells

NASSAU COUNTY

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
Municipal Community			
1	Albertson Water District.	13500. .	.Wells
2	Bayville Village.	.7500. .	.Wells
3	Bethpage Water District.	.32000. .	.Wells
4	Bowling Green Water District. . . .	12000. .	.Wells
5	Carle Place Water District. . . .	11000. .	.Wells
6	Citizens Water Supply Company. . . .	.30000. .	.Wells
7	Deforest Drive Association.	.25. .	.Wells
8	East Meadow Water District.	52000. .	.Wells
9	Farmingdale Village.	7946. .	.Wells
10	Franklin Square Water District. . .	20000. .	.Wells
11	Freeport Village.	38272. .	.Wells
12	Garden City Park Water District. . .	.22596. .	.Wells
13	Garden City Village.	.22927. .	.Wells
14	Glen Cove City.	24618. .	.Wells
15	Hempstead Village.	.40404. .	.Wells
16	Hicksville Water District.	.58000	Wells
17	Jamaica Water Supply Company. . . .	.128448. .	.Wells
18	Jericho Water District.	64000. .	.Wells
19	Levittown Water District.	50000. .	.Wells
20	Lido-Point Lookout Water District. .	.10000. .	.Wells
21	Locust Valley Water District. . . .	.8500. .	.Wells
22	Long Beach City.	.34073. .	.Wells
23	Long Island Water Corporation. . .	258936. .	.Wells
24	Manhasset-Lakeville Water District.	44730. .	.Wells
25	Massapequa Water District.	.52000. .	.Wells
26	Mill Neck Estates Water Supply. . . .	240. .	.Wells
27	Mineola Village.	.20600. .	.Wells
28	New York Water Service.	.172180. .	.Wells
29	Old Westbury Village.	.3100. .	.Wells
30	Oyster Bay Water District.	.10225. .	.Wells
31	Plainview Water District.	40000. .	.Wells
32	Plandome Village.	.2616. .	.Wells
33	Port Washington Water District. . .	35000. .	.Wells
34	Rockville Centre Village.	25405. .	.Wells
35	Roosevelt Field Water District. . .	.1640. .	.Wells
36	Roslyn Water District.	.27500. .	.Wells
37	Sands Point Village.	3002. .	.Wells
38	Sea Cliff Water Company.	.17850. .	.Wells
39	Sel-Bra Acres Water Supply.	.80. .	.Wells
40	South Farmingdale Water District. .	49900. .	.Wells
41	Split Rock Water Supply.	25. .	.Wells
42	Uniondale Water District.	25000. .	.Wells
43	West Hempstead-Hempstead Garden Water District.	32000. .	.Wells
44	Westbury Water District.	.20050. .	.Wells
45	Williston Park Village.	.8216. .	.Wells
Non-Municipal Community			
46	Community Hospital at Glen Cove. . .	1350. .	.Wells
47	Planting Fields Arboretum.	90. .	.Wells
48	Stuart, Walker, Zimmer Water Supply. .	41. .	.Wells

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF PUBLIC WATER SUPPLY PROTECTION

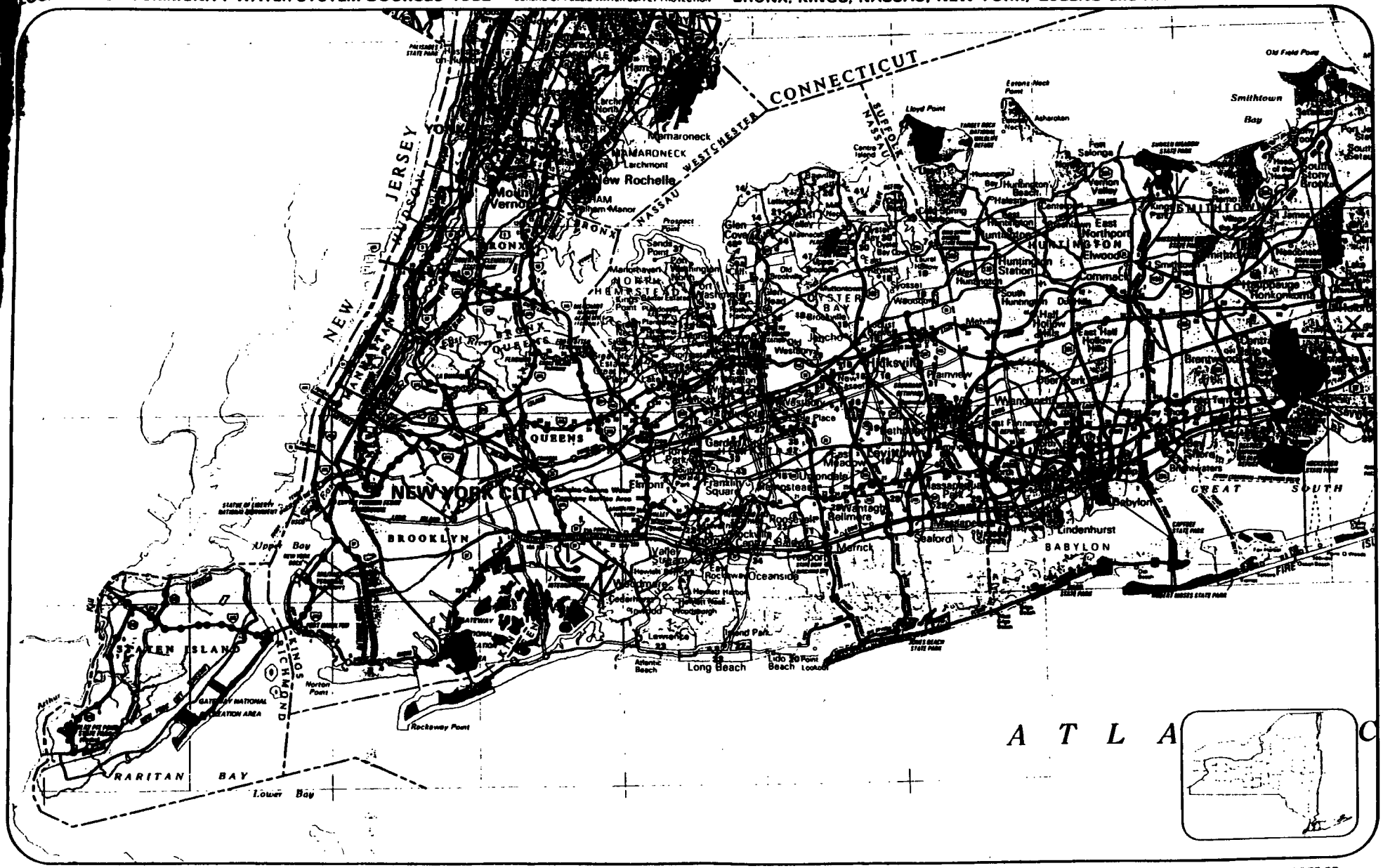
LOCATION OF COMMUNITY WATER SYSTEM SOURCES-1982



LOCATION OF COMMUNITY WATER SYSTEM SOURCES-1982

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF PUBLIC WATER SUPPLY PROTECTION

BRONX, KINGS, NASSAU, NEW YORK, QUEENS and RICHMOND COUNTIES

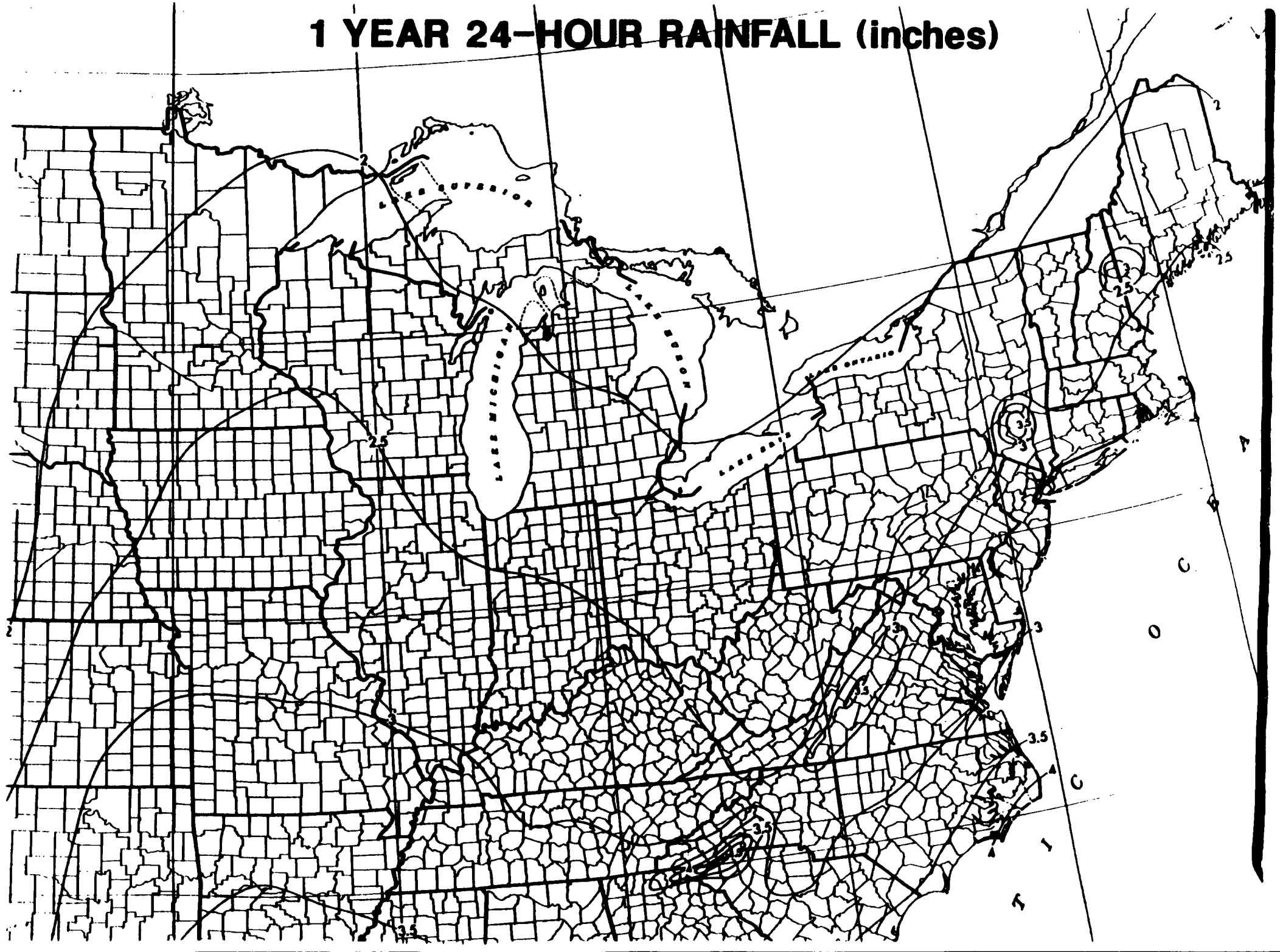


SCALE 1:260,000

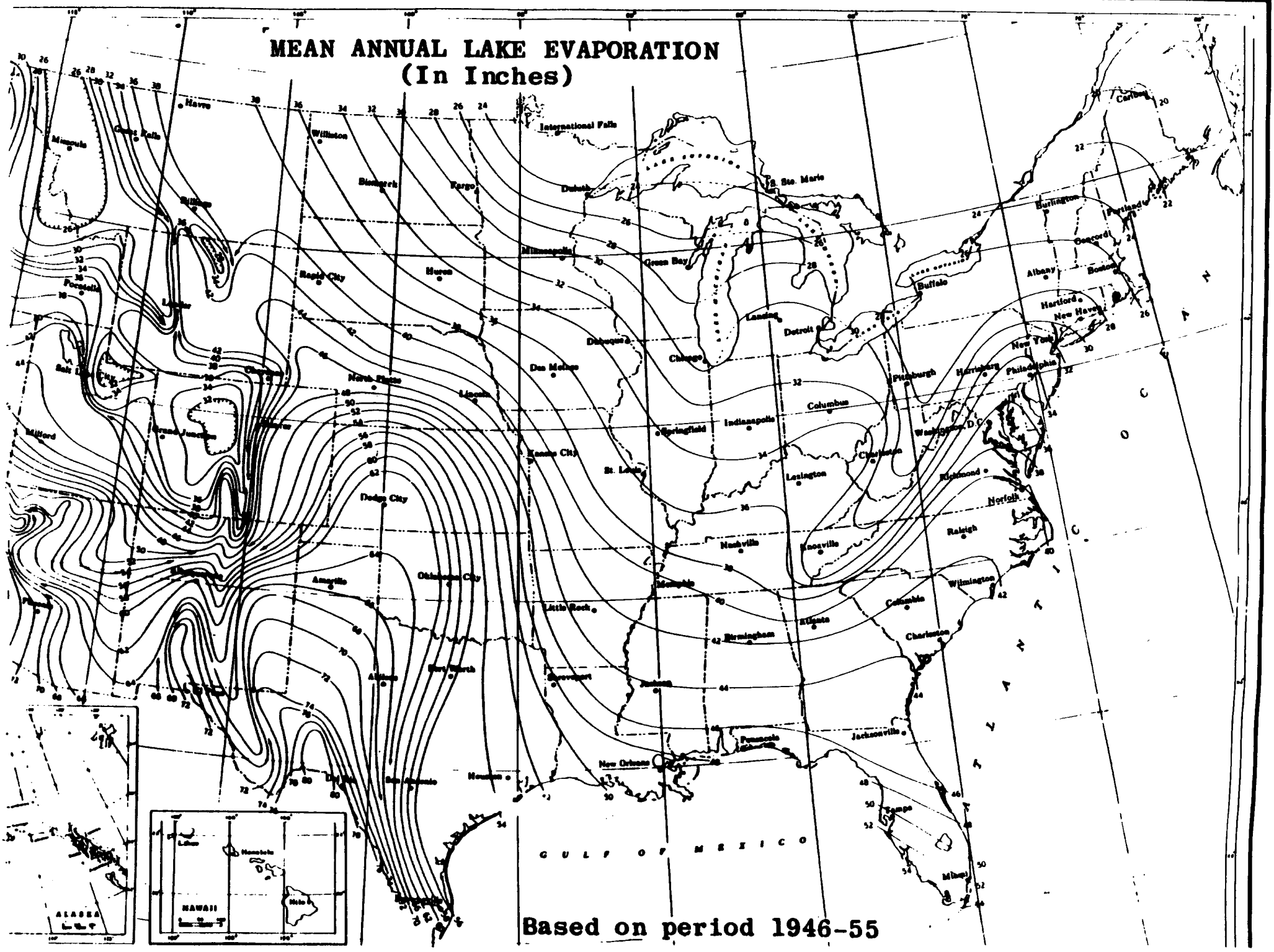
NORTH

REFERENCE NO. 16

1 YEAR 24-HOUR RAINFALL (inches)

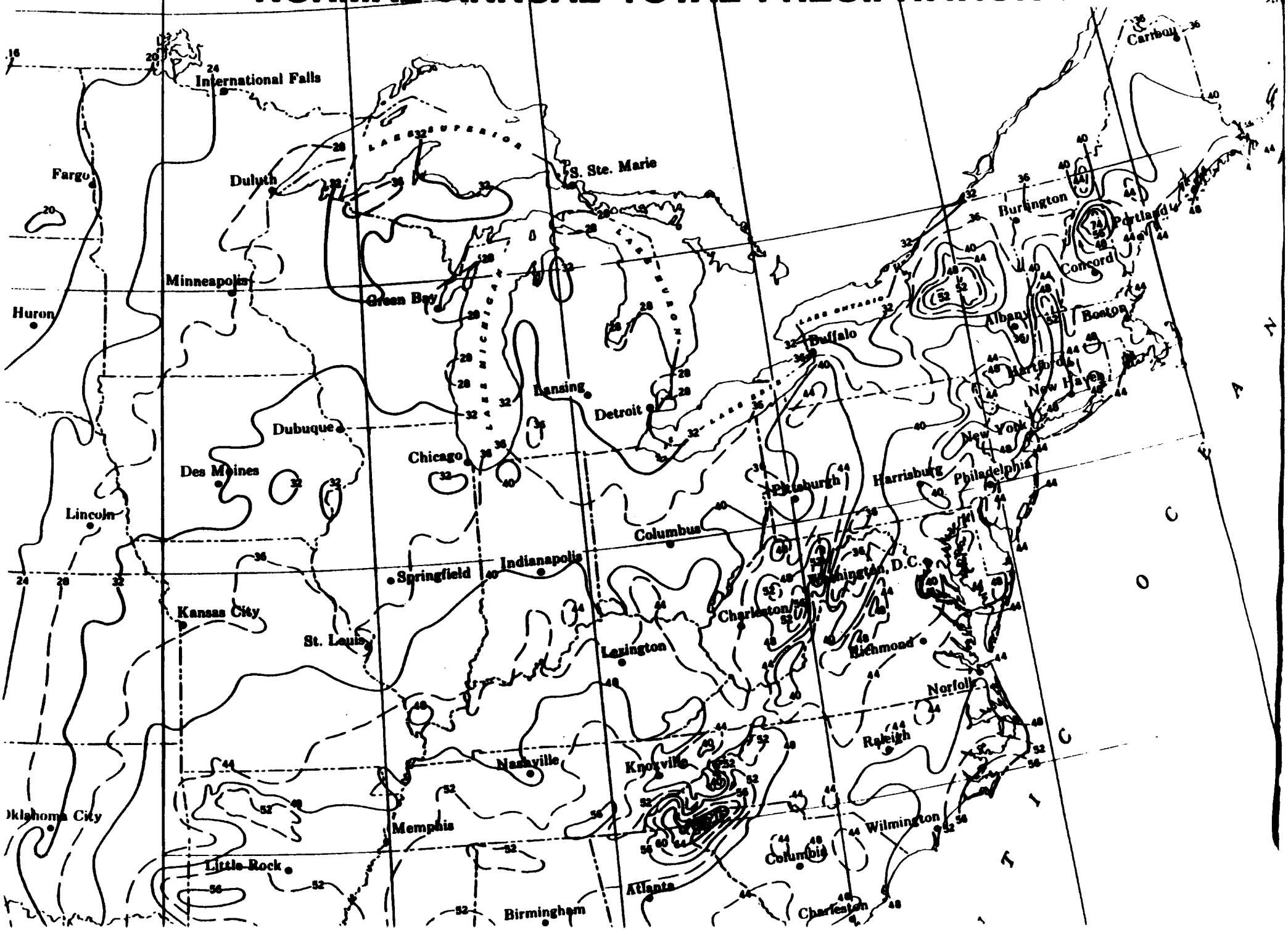


MEAN ANNUAL LAKE EVAPORATION
(In Inches)



Based on period 1946-55

NORMAL ANNUAL TOTAL PRECIPITATION (Inches)



REFERENCE NO. 17

SCALE 1:24 000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOW WATER
THE RELATIONSHIP BETWEEN THE TWO DATUMS IS VARIABLE
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 1.3 FEET

NUS CORPORATION

TITLE: THREE MILE VICINITY MAP

SITE : NTU CIRCUITS, INC., BABYLON, N.Y.

DATE : 03/16/89

TDD : 02-8811-13

QUAD : AMITYVILLE, N.Y.

FIGURE NUMBER:

SCALE: 1"= 2000'

NUS CORPORATION AND SUBSIDIARIES — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
	3/29/89	1420

DISTRIBUTION:

NUS Circuits

BETWEEN:	OF:	PHONE:
Bob Parker	Suffolk County Dept. of Health Services	(516) 348-2517

AND: David Heim (NUS)

DISCUSSION:

Called Mr. Parker about any surface water uses for the Nesquntatogue and Santapogue Creeks. He said that there was no potable intake on either of these creeks, and to the best of ~~this~~ his knowledge, they were not rated for recreational use either.

3.29

ACTION ITEMS:

NUS 067 REVISED 0685

Ground Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	HRS	Max. Score	PRO
1 Observed Release	0 45	1	0	45	45
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.					
2 Route Characteristics					
Depth to Aquifer of Concern	0 1 2 (3)	2	6	9	
Net Precipitation	0 1 (2) 3	1	2	3	
Permeability of the Unsaturated Zone	0 1 2 (3)	1	3	3	
Physical State	0 1 2 (3)	1	3	3	
Total Route Characteristics Score			14	15	—
3 Containment	0 1 2 (3)	1	3	3	—
4 Waste Characteristics					
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	18
Hazardous Waste Quantity	0 (1) 2 3 4 5 6 7 8	1	1	8	1
Total Waste Characteristics Score			19	28	19
5 Targets					
Ground Water Use	0 1 2 (3)	3	9	9	9
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 24 (30) 32 35 40	1	30	40	30
Total Targets Score			39	49	39
6 If line 1 is 45, multiply 1 x 4 x 5. If line 1 is 0, multiply 2 x 3 x 4 x 5			31,122	57,330	33,345
7 Divide line 6 by 57,330 and multiply by 100		S_{gw} = 54.29			58.16

Surface Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	HRS	Max. Score	PRO
1 Observed Release	0 45	1		45	
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					
Facility Slope and Intervening Terrain	0 1 2 3	1		3	
1-yr. 24-hr. Rainfall	0 1 2 3	1		3	
Distance to Nearest Surface Water	0 1 2 3	2		6	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score				15	
3 Containment	0 1 2 3	1		3	
4 Waste Characteristics					
Toxicity/Persistence	0 3 6 9 12 15 18	1		18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				26	
5 Targets					
Surface Water Use	0 1 2 3	3		9	
Distance to a Sensitive Environment	0 1 2 3	2		6	
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1		40	
Total Targets Score				55	
6 If line 1 is 45, multiply 1 x 4 x 5. If line 1 is 0, multiply 2 x 3 x 4 x 5				64,350	
7 Divide line 6 by 64,350 and multiply by 100	S_{sw} = 0.00				0.00

The surface water migration route was scored zero, as there is no overland migration pathway from the site to surface waters.

HRS

	S	S^2
Groundwater Route Score (S_{gw})	54.29	2946.94
Surface Water Route Score (S_{sw})	0.00	0.00
Air Route Score (S_a)	0.00	0.00
$S_{gw}^2 + S_{sw}^2 + S_a^2$		2946.94
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		54.29
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		31.38

WORKSHEET FOR COMPUTING S_M

PRO

	S	S^2
Groundwater Route Score (S_{gw})	58.16	3382.59
Surface Water Route Score (S_{sw})	0.00	0.00
Air Route Score (S_a)	0.00	0.00
$S_{gw}^2 + S_{sw}^2 + S_a^2$		3382.59
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		58.16
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		33.62

WORKSHEET FOR COMPUTING S_M